

INPLASY PROTOCOL

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Physical Activity and Sedentary Behaviour during the COVID-19 Pandemic among Adults in Asia: A Scoping Review

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Review question / Objective: The overall aim of this scoping review is to scope the existing literature to identify the available evidence related to physical activity and sedentary behaviour among adults in Asia during the COVID-19 pandemic lockdown. **Specific Objectives:**

1. To study the types and duration of physical activity during the COVID-19 pandemic lockdown.
2. To determine the types and duration of screen time during the lockdown of the COVID-19 pandemic lockdown.
3. To investigate the effects of physical activity, sedentary behaviour and screen time on health and health outcomes during the COVID-19 pandemic lockdown.
4. To examine the breadth and the outcomes of studies investigating the effect of COVID-19 pandemic lockdown on physical activity and sedentary behaviour among adults.
5. To determine research gaps and future research needs related to physical activity and sedentary behaviour.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 05 April 2022 and was last updated on 05 April 2022 (registration number INPLASY202240023).

INTRODUCTION

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5. To determine research gaps and future research needs related to physical activity and sedentary behaviour.

Rationale: The COVID-19 pandemic, also known as the coronavirus disease, is caused by a virus named Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) that broke out in late 2019 in China. The virus is typically an airborne disease and was found to be influencing the respiratory system of the infected populations. Many parts of the world, especially low-middle income countries, have experienced a high morbidity and mortality burden of the COVID-19 pandemic. Most countries have adopted mitigation practices and implemented forced isolation measures such as lockdowns and movement restrictions orders as an essential strategy to reduce the risks associated with infection by the novel coronavirus. There is evidence that the pandemic itself and the various restrictions to limit the spread of the virus had detrimental impacts on physical activity globally. [3, 4] There is a significant decrease in physical activity (PA), along with increased sedentary behaviour (SB) regardless of age, health status or geographic locations, when comparing pre-COVID-19 periods with COVID-19 lockdowns and/or post-COVID periods. PA refers to any bodily movement produced by skeletal muscles that require energy expenditure while SB is defined as any waking behaviour characterised by an energy expenditure of 1.5 METS or lower while sitting, reclining, or lying. Mounting evidence suggesting that individuals with SB may develop non-communicable diseases (NCDs), including cardiovascular diseases, diabetes mellitus, hypertension, cancer, and osteoporosis. Based on a study done in China, individuals with multiple underlying comorbidities such as

cardiovascular disease, hypertension, respiratory disease, and cancer are the leading causes of premature death during COVID-19. It is well established that PA enhances the immune system's efficacy and cognitive function, improving comorbid conditions such as cardiovascular diseases, cancer and diabetes, preventing cellular stress, and reinforcing and building up muscles in the body. Evidence is also emerging of physical activity benefits specific to severe COVID-19 outcomes, defined by hospitalisation, intensive care unit admission, or death. Patients with COVID-19 who were consistently inactive had a higher risk of hospitalisation, ICU admission and mortality from COVID-19 than patients who consistently complied with physical activity recommendations. Other than advanced age and history of organ transplant, physical inactivity was the strongest risk factor to severe COVID-19 outcomes. Physical activity is a "best buy" in public health, and the COVID-19 pandemic has generated more interest in the benefits of physical activity for infectious diseases, including reduced risk of infection, enhanced immune function to prevent and hasten recovery from infections, and increased effectiveness of vaccination. The pandemics of physical inactivity, NCDs and COVID-19 co-incided with their detrimental long-term health consequences yet to be determined. This scoping review will aid in collating and examining the extended range and nature of research on PA and SB during the COVID-19 pandemic and lockdown among adults in Asia, including Malaysia. Besides, this scoping review will also help to summarise and disseminate research findings and evidences to date and identify research gaps in these areas.

Condition being studied: The inclusion criteria include (i) studies on adults aged 18 years old and above (ii) peer-reviewed journal papers that are published in English up to the year 2022 (iii) original articles and full text (cross-sectional, randomised clinical trials and prospective studies or retrospective cohort studies), and (iv) articles on any form of PA and SB in Asia during the COVID-19 pandemic. The

exclusion criteria: (i) reviews or meta-analysis, and (ii) non-scientific publications or unpublished articles will be developed to ensure coherence and clarity throughout the study.

METHODS

Search strategy: In this scoping review, PubMed, Google Scholar, Ovid Medline, Science Direct, and EBSCOhost are electronic databases that were used to identify potentially relevant documents. MeSH terms, or Medical Subject Headings, were generated from PubMed Database and were primarily used in the search process. Filters were used to restrict to human studies and publications in English language where appropriate.

Example of search strategy using Mesh Terms:

COVID-19

((((((((((((COVID-19 [Supplementary Concept]) OR (2019 novel coronavirus disease) OR (COVID-19 [MeSH Terms]) OR (COVID-19 pandemic) OR (SARS-CoV-2 infection) OR (sars-cov-2 [MeSH Terms]) OR (COVID-19 virus disease) OR (2019 novel coronavirus infection) OR (coronavirus disease 2019) OR (coronavirus disease-19) OR (2019-nCoV disease) OR (COVID-19 virus infection) OR (2019-nCoV infection))

Physical activity

(((((((((((((Physical Activity [MeSH Terms]) OR (Exercise[MeSH Terms]) OR (Physical Activit*[Title/Abstract]) OR (Physical Exercise*[Title/Abstract]) OR (Motor activity[MeSH Terms]) OR (Resistance Training[MeSH Terms]) OR (Exercise Therapy[MeSH Terms]) OR (Acute Exercise*[Title/Abstract]) OR (Isometric Exercise*[Title/Abstract]) OR (Weight-Lifting Exercise Program*[Title/Abstract]) OR (Weight-Bearing Strengthening Program*[Title/Abstract]) OR (Weight-Bearing Exercise Program*[Title/Abstract]) OR (Aerobic Exercise*[Title/Abstract]) OR (Exercise Training*[Title/Abstract]) OR (Strength Training[Title/Abstract]))

Sedentary behaviour

(Sedentary Behaviour [MeSH Terms]) OR (Sedentarism [MeSH Terms]) OR (Sedentary Lifestyle [MeSH Terms]) OR (Physical

Inactivity [MeSH Terms]) OR (Lack of Physical Activity [MeSH Terms]) OR (Sedentary time [MeSH Terms]) OR (Screen Time*[Title/Abstract]) OR (Sitting Time*[Title/Abstract])

AND (To restrict articles in Asia)

“ASIA”

NOT (to exclude)

“Reviews”.

Participant or population: Adults in Asia.

Intervention: Physical Activity or Exercise.

Comparator: Physical activity adequacy.

Study designs to be included: original articles and full text (cross-sectional, randomised clinical trials and prospective studies or retrospective cohort studies.

Eligibility criteria: The inclusion criteria include: (i) studies on adults aged 18 years old and above (ii) peer-reviewed journal papers that are published in English up to the year 2022 (iii) original articles and full text (cross-sectional, randomised clinical trials and prospective studies or retrospective cohort studies), and (iv) articles on any form of PA and SB in Asia during the COVID-19 pandemic.

Information sources: The PubMed, Google Scholar, Ovid Medline, Science Direct, and EBSCOhost electronic databases were used to identify potentially relevant documents. Filters will be used to restrict the papers to human studies and publications in English language where appropriate.

Main outcome(s): Physical activity and Sedentary Behaviour during the COVID-19 Pandemic (in Asia); Health outcomes (Mental and Physical Health), including COVID-19 outcomes for physical activity or exercise intervention.

Data management: The Covidence software was used to manage records and data.

Quality assessment / Risk of bias analysis: The scoping review had systematically map

the research done on PA and SB during the COVID-19 pandemic in Asian countries and identify any gaps in knowledge. The scoping review had utilised the 6 steps outlined by Arksey and O'Malley , guidelines enhanced by Levac et al., Colquhoun et al, and Joanna Briggs Institute.

Strategy of data synthesis: Systematic mapping of outcomes.

Subgroup analysis: Not applicable.

Sensitivity analysis: Not applicable.

Language: English.

Country(ies) involved: Malaysia.

Keywords: Physical activity, sedentary behaviour, COVID-19, lockdown, health outcomes.

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