

The Importance of Physical Activity during COVID-19

Chantal Littrean, MPH & Latoya Bell-Trowers, PhD



Abstract

On March 11, 2020, the World Health Organization (WHO) declared corona virus disease 2019 (COVID-19) to be a global pandemic. Lockdowns, social distancing, isolation, mask wearing, travel restriction and quarantine are but a few public health measures taken across worldwide to curb the spread of the disease in communities; and in addition is the profound impact that physical activity (PA) has towards the health and well-being of the general population. This paper examines physical activity as an important determinant of health and the benefits and challenges surrounding it during COVID-19.

Introduction

- The World Health Organization (WHO) defines PA as any bodily movement produced by skeletal muscles that requires energy expenditure.
- Benefits of regular PA include prevention and management of communicable diseases, cardiovascular health, healthy body weight, stroke, diabetes, cancers and mental health improvements.
- Regular PA activity is proven to benefit overall quality of life and well-being (WHO, 2010).
- COVID-19 pandemic created severe confinement rules, which restricted people around the world from engaging in PA. This created significant challenges in fulfilling daily recommendations.
- This poster examines the challenges and benefits of PA as a mechanism to the health and well-being of the population.
- Due to the spread of COVID-19 throughout 2020, lockdown measures and restrictions remained generally in place.
- Citizens were oftentimes requested to stay within their homes for prolonged periods of time.
- With this increased time within the home, people across the globe began to decrease their regular engagements in common behaviors and daily activities.
- Daily routines were broken, and regular practices such as daily physical activity have been abandoned as people adjusted to their new normal.
- A recommended physical activity has been defined as 150 minutes of moderate activity per week or 75 minutes of vigorous intensity per week per the World Health Organization (WHO). An equivalent combination of both also suffices.
- The adoption of sedentary lifestyle behaviors throughout the COVID pandemic created a concern within the public health zeitgeist about the possible negative health consequences endured on Americans throughout this period of increased restrictions (Castaneda-Barbarro, 2020).

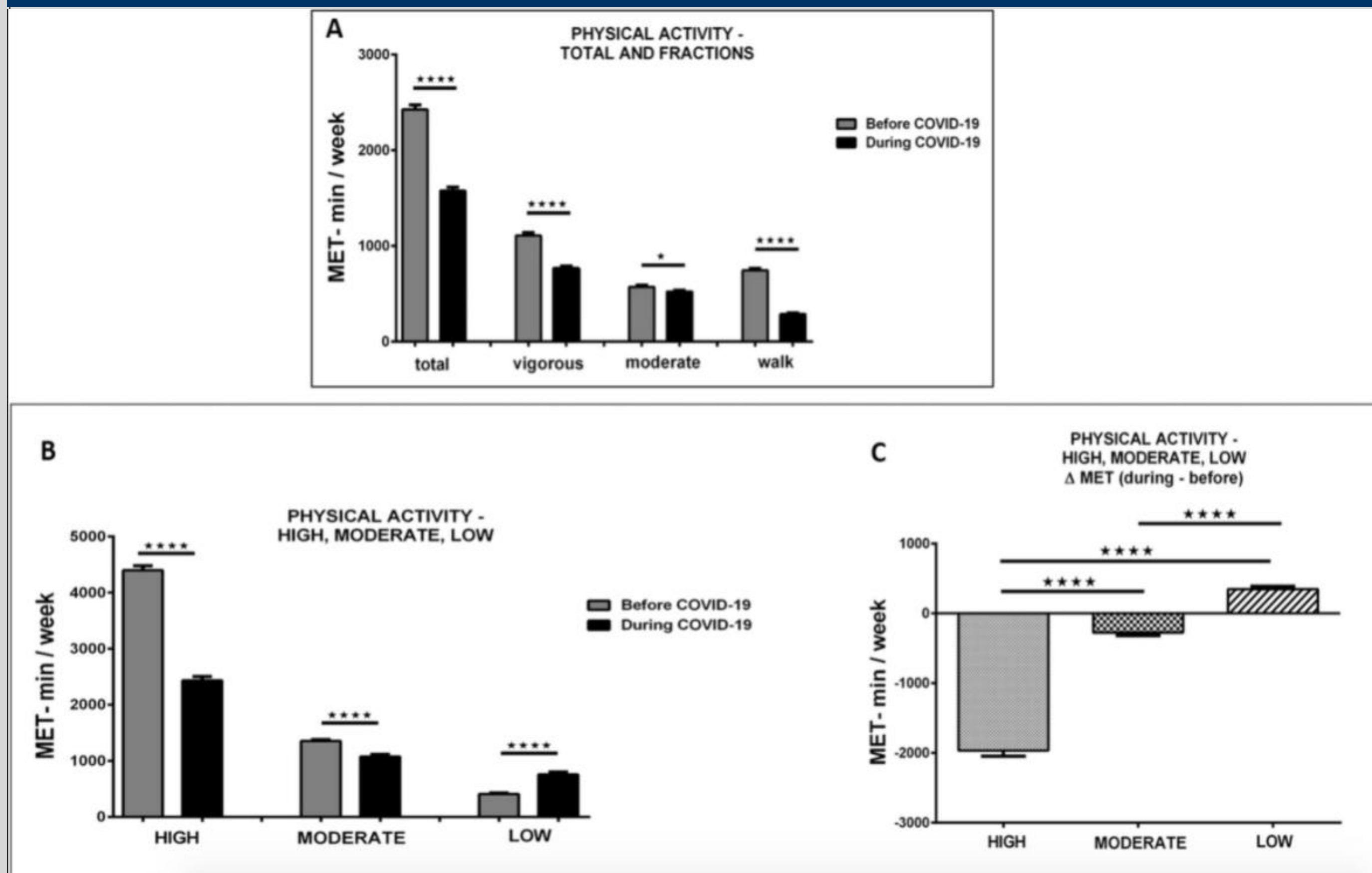
Methods

A literature review was conducted by analyzing scientific literature discussing physical activity during the COVID-19 pandemic. Only papers created after 2020 were looked and analyzed. After analysis, statistically significant differences were noted. Root causes and underlying influences were assessed and compiled to form this analysis.

Objectives

- To Understand the Effects of the COVID-19 and its related restrictions and limitations on physical activity
- To Understand the Benefits of physical activity on individuals during the COVID-19 pandemic
- To Understand the Challenges of engaging in physical activity caused by COVID-19 and its related restrictions and limitations.

Results



- Decreases in PA were also witnessed throughout the country of Italy.
- The questionnaire adapted both the International Physical Activity Questionnaire (IPAQ-S) and also included questions and assessments from the Psychological general well-being index. Responses were converted to Metabolic Equivalent Task minutes per week (MET-min/week) through automatic scoring of the IPAQ-S.
- A total of 2976 Italians were surveyed and within their responses, participants stated their pre COVID-19 physical activity levels.
- Decreases in vigorous physical activity, moderate physical activity, and walking were all observed. These results can be seen in Figure 2 in Appendix C (see Appendix C).
- Psychological Well Being Scoring showed a positive correlation between variations of physical activity and mental well-being.

Results

Physical Activity Change during COVID-19 Confinement, (Castaneda-Babarro et al (2020))

- Analyzed the changes in physical activity within the Spanish population..
- Researchers surveyed over 3800 individuals and asked participants to complete the international physical activity questionnaire short form before entering lockdown and during confinement.
- Researchers then carried out data analysis taking into consideration of meeting general PA recommendations before confinement, age and gender.
- On analysis, researchers were able to conclude that physical activity decreased amongst participants in lockdown in statistically significant ways. Most notably, vigorous activity and walking time suffered statistically significant decreases

Early effects of the COVID-19 pandemic on physical activity locations and behaviors in adults living in the United States (Dunton et al, 2020).

- Participants were invited to complete the survey through social media platforms and university based email servers. N = 268
- Pre pandemic and post pandemic PA levels were assessed through the International Physical Activity Questionnaire.
- researchers determined there were statistically significant decreases in vigorous activity, moderate activity, and walking levels among participants during the COVID-19 pandemic.
- Moreover, researchers were able to determine that households making between \$27,000 and \$57,999 saw bigger decreases in walking physical activity time compared to adults making over \$100,000 a year.

Discussion(Benefits)

- PA has proven to be beneficial in improving the clinical conditions that are most frequently associated with severe COVID-19.
- These clinical conditions include diabetes, hypertension, and heart disease. Physical activity contributes to the reduction of overall cardiovascular risks, lowering both systolic and diastolic blood pressure and remodeling left ventricular hypertrophy.
- Physical activity has also well-known positive effects on metabolic syndrome and insulin sensitivity.
- Therefore, it can be assumed that individuals who engage in the recommended amount of physical activity as previously mentioned decrease their personal likelihood of encountering chronic cardiovascular and metabolic diseases compared to persons who prescribe a life that resembles the guidelines outlined in a sedentary lifestyle (Dwyer, 2020).
- Prolonged self-quarantine posed a significant challenge for the population to remain physically active and may impact their quality of life. .
- Home based PA and its positive impact have been reported on both physical and psychological variables in various populations. Similarly, Anne Felicia Ambrose, MD, Associate Professor of Rehabilitation Medicine at Montefiore Medical Center, Bronx NY created an at home PA guide for patients and caregivers to manage COVID-19 during the pandemic (Ambrose, 2020).
- created the guide to assist those afflicted with the disease an at home exercise program upon discharge.
- The guide provided a sequence of PA progressions and levels to help patients recover at home (see Appendix B).
- PA activity can start with a simple level1 for very weak patients, who have to lie down most of the time and progress to a level 3, which are mainly standing exercises.
- Dr. Ambrose provided additional information on mental and emotional health, isolation, diet, and many more guidance in managing the virus and patient well-being including references from the Centers for Diseases Control (CDC)

Sequence of Exercise Progression

Level 1	These exercises are suitable for patients who are very weak and have to lie down most of the time. <ul style="list-style-type: none"> Start with the breathing exercises (exercises 1-3) done at least twice a day, and increase to 4-6 times a day Gradually add the other exercises as tolerated. You can do a few of the different exercises at each session Once you can do all the exercises in one session without any difficulty, repeat them 2-3 times a day
Level 2	Once the patient can complete level 1 exercises with ease, proceed to level 2 which are mainly seated exercises. <ul style="list-style-type: none"> Continue with level 1 exercises Start with a few of the exercises in Level 2 Gradually increase the number of exercises that can be done at each session Increase to repeating the exercises 2-3 times a day.
Level 3	Once the patient can complete level 2 exercises with ease, proceed to level 3 which are mainly standing exercises <ul style="list-style-type: none"> Continue with level 1 and 2 exercises Start with a few of the exercises in Level 3 Gradually increase the number of exercises that can be done at each session Increase the numbers of sessions as tolerated. The goal is to do this 2-3 times a day.

Discussion/Conclusion

- Due to the "stay at home" related orders executed by local municipalities throughout the globe. Due to these mandates, restrictions and access to regular sporting or exercise routines were not available.
- This lack of access would lead to challenges to both physical and mental health.
- This baseline lack of access would further be exacerbated by the mental health toll the pandemic has been demonstrated to have on people.
- Overall, this lack of access leads to the exacerbation and/or commencement of existing diseases that are enabled by a sedentary lifestyle (United Nations, 2020).
- Stratified by income class, decreases in PA were noted in lower income groups as compared to higher wage earners. F
- Individuals from lower income households were less likely to report engaging in physical activity within their sidewalks or on local roads within their neighborhood.
- Streets in lower income communities have reduced quality of sidewalks and improper access to quality open spaces to participate in exercise outdoors.
- Greater traffic volumes and higher crime rates in lower income neighborhoods serve as deterring factors for members of the community to engage in outdoor physical activity and leisurely walking.
- Demonstrate the disproportionate impacts of the COVID-19 pandemic on lower income and ethnic minority groups reach beyond viral exposures and mortality.
- These disparities extend to health-related behaviors that may have long-lasting consequences and lead to the development of chronic cardiovascular and metabolic diseases.

Conclusion

- Physical activities well demonstrated benefits on both physical and mental health.
- With the emergence of the COVID-19 pandemic, shelter in place orders and restrictions on travel and businesses limited the global communities' access to the daily routines. With this "new normal" literature has demonstrated that within the United States and around the world, physical activity has decreased across all communities..
- Challenges include access to exercising spaces and sporting opportunities existed leading to decreases in Physical Activity
- Prominent benefits were noted for persons who remained engaged in physical activity throughout the time of pandemic related closures.
- Benefits included improvements in physical and psychological variables and improvements in clinical conditions such as cardiovascular and metabolic diseases.
- Future research should aim to understand the full scope of changes in physical activity once the pandemic has ended and provide actionable

Acknowledgement & Faculty Advisor

Thank you Dr. Trowers and the entire faculty at the SPH for the knowledge, support and dedication you provide to students.