

RESEARCH ARTICLE

Assessing physical activity and sedentary time during the COVID-19 pandemic using self-reported measurement

Faisal Awad Barwais

Department of Physical Education and Sports, Umm Al-Qura University, Makkah, Kingdom of Saudi Arabia

Correspondence to: Faisal Awad Barwais, E-mail: fabarwais@uqu.edu.sa

Received: September 09, 2020; Accepted: October 01, 2020

ABSTRACT

Background: Today, more than 200 countries have implemented lockdowns to counteract the COVID-19 pandemic. Experts in the sports science field and many international organizations argued in favor of continued regular physical activity as much as possible during the COVID-19 lockdown. **Aim and Objective:** This study aimed to examine the impact of the COVID-19 lockdown on levels of physical activity and sedentary time with differing weight status based on body mass index (BMI) categories. **Materials and Methods:** This research is a cross-sectional study of a sample of 486 young and middle-aged Saudi adults (306 men and 180 women); age range 18–59 years (mean age \pm SD, 34.6 \pm 8.3 years); and BMI range 18.5–47 kg/m² (mean BMI \pm SD, 28.4 \pm 6.1 kg/m²). An online version of the International Physical Activity Questionnaire was randomly distributed to as many people as possible from April 9–25, 2020. **Results:** The majority (80.6%) of the participants of this study were not meeting the World Health Organization recommendations on physical activity levels. Moreover, the participants spent, on average, 10.55 h/day in activities related to sitting, and no significant difference in sedentary time activities was found according to BMI status. **Conclusions:** Health education efforts are needed to make people stay physically active at home using various safe and easily implementable exercises and reduce the sedentary time during the COVID-19 lockdown. The current results will probably lead to increased attention to developing potential intervention methods to change exercise patterns and ways to deliver home exercises that will encourage people to engage in regular physical activity inside their home during the COVID-19 lockdown.


KEY WORDS: Coronavirus; International Physical Activity Questionnaire; Body Mass Index; Subjective Assessment

INTRODUCTION

As of late January 2020, the global COVID-19 pandemic has battered the world. Many nations across the globe turned to restrictive policy measures to slow the spread of COVID-19.^[1] Consequently, countries have effectively closed their borders, and millions of people are confined to their

homes. This pandemic has completely upended lives across the planet; schools and universities were closed, forcing millions to work from home.^[2] At present, many researchers are racing to find a vaccine, and this vaccine will be critical to protecting people against this pandemic. However, despite all global collaborative efforts to find a vaccine, COVID-19 is still both deadly and extremely transmissible.^[3]

On the other hand, experts in the sports science field and many international organizations argued in favor of continued regular physical activity as much as possible during the COVID-19 lockdown to avoid physiological and psychological health risks such as increasing obesity, depression, infection, and cardiovascular diseases. For optimal health benefits of regular physical activity, the World

Access this article online	
Website: www.njppp.com	Quick Response code 
DOI: 10.5455/njppp.2020.10.09241202001102020	

National Journal of Physiology, Pharmacy and Pharmacology Online 2020. © 2020 Faisal Awad Barwais. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

Health Organization (WHO) Global Recommendations on physical activity for health state that adults aged 18–64 years should spend at least 2.5 h (150 min) engaging in moderate-intensity physical activity each week, or at least 1 h and 15 min of vigorous-intensity physical activity weekly, or an equivalent combination of both.^[4] Adults who meet the minimum of these recommendations have shown a better health-related quality of life, an increasing life expectancy for individuals in different body mass index (BMI) groups, and an increase in life expectancy by 3 years.^[5,6]

During 24 h a day, people perform various physical activities such as walking, cycling, and housework. These everyday activities occur across all domains at work, home, transportation, and during leisure time and contribute to people's physical activity minutes.^[7] Hence, staying at home may restrict the participation of people in certain forms of physical activity, and it is challenging to achieve the recommended levels of physical activity when people's daily movements are restricted. During the COVID-19 lockdown, the Ministry of Health and the Ministry of Sport in the Kingdom of Saudi Arabia (KSA) have highlighted how people can stay physically active at home using various safe and easily implementable exercises. Social media sites, television programs, and eHealth apps have been used to deliver several home exercises that require no equipment, little space, and can be practiced at any time. Moreover, there have been clear efforts of organizations in KSA to increase attention toward health-related physical activity at home, which brings overall health benefits to all individuals during this critical period. At present, there is no scientific evidence on how people meet the recommended levels of physical activity because of the specific lockdown situation. Therefore, this study aimed to examine the impact of the COVID-19 lockdown on the levels of physical activity and sedentary time among young and middle-aged Saudi adults with differing weight status based on BMI categories.

MATERIALS AND METHODS

This research is a cross-sectional study on the levels of physical activity and sedentary time in a sample of 486 young and middle-aged Saudi adults (306 men and 180 women); age range 18–59 years (mean age \pm SD, 34.6 \pm 8.3 years); and BMI range 18.5–47 kg/m² (mean BMI \pm SD, 28.4 \pm 6.1 kg/m²). Approximately 1 week after the KSA authorities imposed a 24-h curfew on most cities on April 9, 2020, an online version of the International Physical Activity Questionnaire (IPAQ) was randomly distributed to as many people as possible until April 25. The respondents were conveniently recruited through social media (Twitter, Telegram, and WhatsApp groups) and e-mailing channels, and they had to provide written informed consent before completing the online questionnaire. This study was approved by the institutional ethics committee of Graduate Studies

and Scientific Research of the College of Education, Umm Al-Qura University.

Measures

The online questionnaire consisted of several questions measuring (a) general demographic information, including gender, age, height, weight, and administrative region and (b) the physical activity levels and sedentary time during the COVID-19 lockdown using the short version of IPAQ.

The IPAQ has been considered the most commonly used questionnaire for measuring physical activity levels and sedentary time across various life domains.^[8] Scoring of the IPAQ is based on a metric called metabolic equivalent of task (MET), in which different levels of intensity and activities are assigned different MET estimates. The IPAQ contains objective questions by recording the activity of (1) frequency (days per week), (2) duration (hours/minutes), (3) and level of intensity (vigorous, moderate) of physical activity during the last 7 days.^[9] In this study, the guidelines for data processing and analyses of the IPAQ scoring protocol were used, in which the weekly total physical activity (MET-minutes/week) was calculated. Thus, the study participants were classified into three different categories depending on physical activity as follows:^[10]

- Category 1 (light-intensity physical activity): <600 MET-minutes/week
- Category 2 (moderate-intensity physical activity): \geq 600 to <3000 MET-minutes/week
- Category 3 (high-intensity physical activity): \geq 3000 MET-minutes/week.

In addition, the respondents were asked to estimate the total number of hours and minutes per day spent sitting during the COVID-19 lockdown. BMI groups were defined using the WHO classification system as normal (\geq 18.5–24.9 kg/m²), overweight (\geq 25–29.9 kg/m²), and obese (\geq 30 kg/m²).^[11]

Statistical Analysis

All statistical analyses were carried out using SPSS statistical software, version 26.0 for Windows (IBM SPSS Inc., Chicago, IL). Descriptive statistics (means, standard deviations, and percentages) were calculated for all the relevant variables and statistical significance was considered with a value of $P < 0.005$. The differences in physical activity levels and sedentary time between men and women were tested using independent samples t-test. Analysis of covariance (ANCOVA) was used to analyze overall differences in physical activity levels (light-, moderate-, and vigorous-intensity physical activity) and sedentary time, according to weight status (i.e., normal weight, overweight, and obese), adjusted by sex. Bonferroni confidence interval adjustments were made for multiple comparisons.^[12]

RESULTS

Table 1 shows that a total of 486 young and middle-aged Saudi adults (306 men and 180 women), aged from 18 to 59 years (mean age ± SD, 34.6 ± 8.3 years), participated in this study. The majority of the participants were from the Mecca region (36.8%), Riyadh region (22.6%), and Medina region (13.4%). The other participants were from the Qassim region (7.2%), Eastern region (7.8%), Asir region (6.2%), and Jazan region (6.0%). The mean BMIs ± SD for each category are shown in Table 1. BMI scores ranged from 19 to 59 kg/m², with a mean BMI of 28.4 ± 6.1 kg/m². On the basis of the BMI categorization, 188 (38.7%) participants were found to be overweight, 173 (35.6%) were obese, and 125 (25.7%) had normal weight. More male participants were found to be slightly overweight than female participants (138 [45.1%] vs. 50 [26.0%], respectively), and more female participants (36.7%) were found to have lower than the normal weight than male participants (19.3%).

Table 2 shows the differences in the total MET-minutes/week of physical activity and sedentary time (hours/day) between men and women during the COVID-19 lockdown. The independent samples *t*-test indicated no significant differences in sedentary time between men (9.5 ± 2.3 h/day) and women (11.6 ± 2.4 h/day) during the COVID-19 lockdown (*t* (484) = -9.223; *P* < 0.133). Likewise, there were no significant differences in light- and vigorous-intensity physical activities between men and women during the COVID-19 lockdown (231 ± 147 MET-minutes/week for men and 234 ± 150 MET-minutes/week for women, *t* (390) = -0.222; *P* < 0.763 for light-intensity physical activity, and 3351 ± 396.6 MET-minutes/week for men and 3227 ± 135.8 MET-minutes/week for women, *t* (6) = .150;

P < 0.150 for vigorous-intensity physical activity). However, a significant difference in moderate-intensity physical activity was found between men (990 ± 340.8 MET-minutes/week) and women (811 ± 199.0 MET-minutes/week) during the COVID-19 lockdown (*t* (84) = 2.638; *P* < 0.001).

Figure 1 shows the differences in the physical activity levels (light-, moderate-, and vigorous-intensity physical activity) according to BMI status (i.e., normal weight, overweight, and obese), adjusted by sex. The ANCOVA revealed that after adjustment by sex, there was a statistically significant effect of BMI status on light-intensity physical activity,

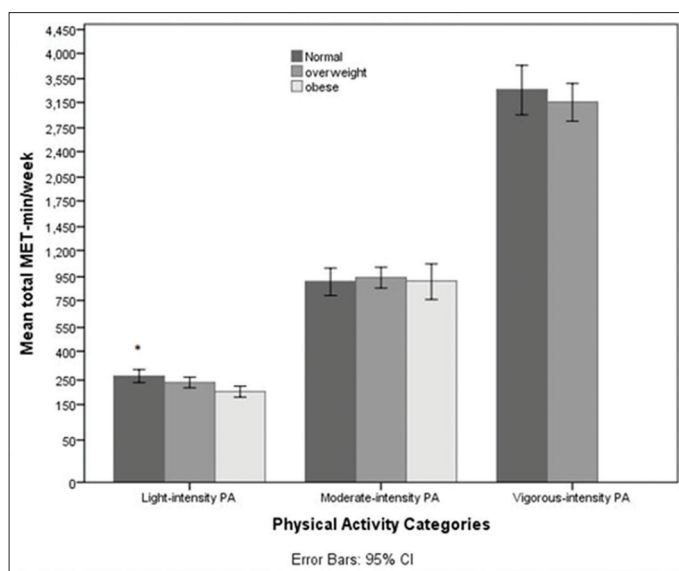


Figure 1: Differences in physical activity levels (light-, moderate-, and vigorous-intensity physical activity) according to body mass index status (i.e., normal weight, overweight, and obese), adjusted by sex

Table 1: Demographics of the study population (mean±SD) (n=486)

Variables	All participants (n=486)	Men (n=306)	Women (n=180)
Age (years)	34.6±8.3	34.0±8.6	35.0±7.7
Height (cm)	169.3±11.0	174.5±7.8	160.6±8.0
Weight (kg)	81.8±19.5	87.1±19.0	72.0±19.0
BMI (kg·m ⁻²)	28.4±6.1	29.0±5.7	28.0±6.5
Body mass index category (%)			
Normal weight	(n=125) 25.7%	(n=59) 19.3%	(n=66) 36.7%
Overweight	(n=188) 38.7%	(n=138) 45.1%	(n=50) 26.0%
Obese	(n=173) 35.6%	(n=109) 35.6%	(n=59) 37.3%
Administrative regions in KSA (%)			
Riyadh region	(n=110) 22.6%	(n=78) 25.5%	(n=32) 17.8%
Makkah region	(n=179) 36.8%	(n=105) 34.3%	(n=74) 41.1%
Madinah region	(n=65) 13.4%	(n=49) 16.0%	(n=16) 8.9%
Qassim region	(n=35) 7.2%	(n=24) 7.8%	(n=11) 6.1%
Eastern region	(n=38) 7.8%	(n=24) 7.8%	(n=14) 7.8%
Asir region	(n=30) 6.2%	(n=11) 3.6%	(n=19) 10.6%
Jazan region	(n=29) 6.0%	(n=15) 4.9%	(n=14) 7.8%

$F(5,452) = 7.00$ ($P < 0.005$). Post-hoc tests revealed significant differences in light-intensity physical activity between normal weight and obese groups ($P < 0.001$). In contrast, no significant difference was found between normal weight and overweight groups ($P = 0.367$) and between overweight and obese groups ($P = 0.068$). For moderate-intensity physical activity, the ANCOVA showed no significant difference among BMI status groups (normal weight, overweight, and obese), $F(1,184) = 0.068$ ($P < 0.311$). The independent samples t-test showed no significant difference in vigorous-intensity physical activity according to BMI status between normal weight and overweight groups ($t(5) = 2.588$; $P < 0.609$) [Figure 1].

Figure 2 shows differences in sedentary time (hours/day) according to BMI status (i.e., normal weight, overweight, and obese), adjusted by sex. The ANCOVA revealed that, after adjustment by sex, no significant difference was found in sedentary time (hours/day) according to BMI status between normal weight and overweight groups ($F(0.691) = 3.401$; $P < 0.454$).

DISCUSSION

The results of this study have shown that the COVID-19 lockdown has a substantial impact on physical activity

Table 2: Differences in total MET-minutes/week of physical activity and sedentary time (hours/day) between men and women during the COVID-19 lockdown

Variables	Men (n=306)	Women (n=180)	P-value
Sedentary time	(n=306) 9.5±2.3	(n=180) 11.6±2.4	$P < 0.133$
Light PA	(n=246) 231±147	(n=146) 234±150	$P < 0.763$
Moderate PA	(n=56) 990±340.8	(n=30) 811±199.0	$P < 0.001^*$
Vigorous PA	(n=4) 3351±396.6	(n=4) 3227±135.8	$P < 0.150$

Sedentary time (hours/day) physical activity (MET-minutes/week). * $P < 0.001$

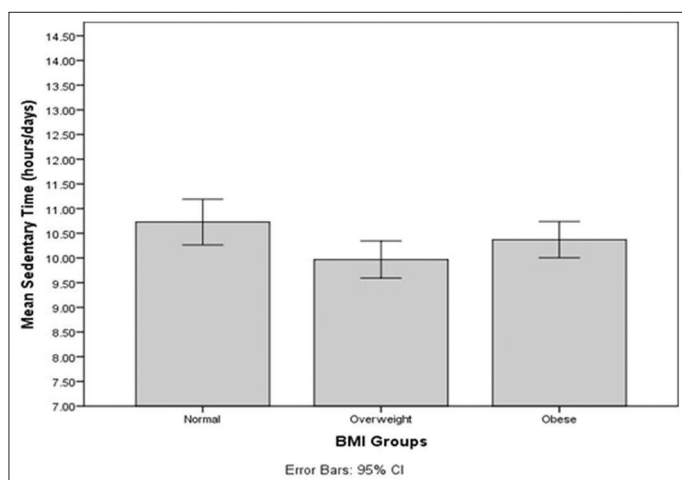


Figure 2: Differences in sedentary time (hours/day) according to body mass index status (i.e., normal weight, overweight, and obese), adjusted by sex

levels and the amount of sedentary time at home. Although the participants have more time than before the COVID-19 lockdown to be physically active at home, most (80.6%) were not meeting the WHO recommendations regarding physical activity levels. The study's results are consistent with the findings of a recent study by Sañudo *et al.*,^[13] who studied 139 young adults using objective and subjective physical activity measurements before and during the COVID-19 quarantine in Spain. The researchers found that the amount of time spent doing moderate- and vigorous-intensity physical activity decreased by 92% compared to before the pandemic. Similarly, Cheval *et al.*^[14] found a significant decrease of around 15 min/day in the amount of time spent performing physical activities in France and Switzerland. In contrast, 85% of the participants were not meeting the WHO recommendations regarding physical activity levels during quarantine in Italy and Spain.^[15]

Lockdown policies during COVID-19 required people to stay at home during the pandemic, and this led to an increase in sedentary time. The results of this study have shown that participants spent, on average, 10.55 h/day doing activities while sitting. This is similar to the results of a study by Cheval *et al.*^[14] which showed that participants spent, on average, more time doing sedentary activities (around 76 min/day) at home compared to before the COVID-19 lockdown. Similarly, a study on the situation in Spain found that the amount of time spent on sedentary activities significantly increased by an average of 3.3 h/day.^[13] There is evidence showing that physical inactivity and more time spent in sedentary activities are associated with several health risks.^[16,17] More recently, many studies have focused on the benefits of regular physical activity at home and reducing the amount of sedentary time during the COVID-19 lockdown to avoid the risk of upper respiratory tract infections and to help the immune system fight viruses and bacteria as well as improve physical health.^[18,19] Moreover, recent research has found that individuals who walk for more than 45 min a day most of the week have improved immune regulation and a decreased risk of different illnesses.^[14] They also have a reduced risk of influenza-associated mortality.^[20,21]

The results of this study showed no significant differences in moderate- and vigorous-intensity physical activities according to BMI status among normal weight, overweight, and obese groups during the COVID-19 lockdown. These findings do not agree with the hypothesis that groups with a higher BMI (the overweight or obese groups) were less physically active than the group with normal weight.^[22,23] Expectedly, the results are plausible given the observed trend toward a decrease in physical activity when the participants were forced to stay at home, which disrupted their regular physical activities. This situation may affect the physical activity levels of people who were highly active before the COVID-19 lockdown, regardless of their BMI status. Recently, several studies have indicated that this pandemic

has negatively affected physical activity levels, especially those of overweight and obese adults.^[24,25] The declining levels of physical activity among overweight and obese individuals before the COVID-19 lockdown was already described as a worldwide public health risk.^[26] Alarming, the current pandemic seems to be further worsening these circumstances.^[27]

In this study, no significant differences in moderate- and vigorous-intensity physical activities were found among BMI groups during the COVID-19 lockdown. These findings revealed that an increasing amount of time is spent on sedentary activities, with no significant difference found between normal weight and overweight BMI status groups in terms of the average amount of time spent sedentary (10.55 h/day). These results are in accordance with a previous study that showed that sedentary time constitutes the bulk of waking hours in young and middle-aged Saudi adults.^[28,29]

Therefore, minimizing sedentary time is an important target for the general populace in terms of health behavior modification and lifestyle programs before the COVID-19 lockdown but now, especially during the current pandemic. Such knowledge is essential to reduce the risk of COVID-19 for overweight and obese patients.^[30]

Limitations of the Study

Although this is a cross-sectional study on physical activity levels and the amount of sedentary time in a sample of respondents, namely, 486 young and middle-aged Saudi adults, certain limitations are present. One major limitation is that the data were obtained via a self-reported questionnaire (IPAQ). In addition, it is possible that the participants had difficulty recalling and describing their behaviors or understanding the written instructions and questions. Multiple precautions were taken to minimize bias, including deleting participants with unrealistic responses and incomplete questionnaires. Nevertheless, recall bias is considered one of the limitations of this study because it depends mainly on the self-reported questionnaire.

CONCLUSIONS

Despite health education efforts to make people stay physically active at home using various safe and easily implementable exercises and reduce the sedentary time during the COVID-19 lockdown to avoid the occurrence of physiological and psychological health risks, the majority (80.6%) of the participants in this study were still not meeting the WHO recommendations on physical activity levels. Moreover, participants spent, on average, 10.55 h/day in activities related to sitting with no significant difference in sedentary time activities according to BMI status between normal weight and overweight groups. It is probable

that the current results will lead to increased attention to developing potential intervention methods that can change exercise patterns and ways to deliver home exercises that will encourage people to engage in regular physical activity inside their home during the COVID-19 lockdown.

ACKNOWLEDGMENT

The author wishes to thank all the teams at the Hayawia Center for their support and advice, especially for working during the lockdown. In addition, the author would like to acknowledge the research participants for their involvement.

REFERENCES

1. World Health Organization. WHO Director-General's Opening Remarks at the Media Briefing on COVID-19-11 March 2020. Geneva, Switzerland: World Health Organization; 2020.
2. Barry M, Ghonem L, Alsharidi A, Alanazi A, Alotaibi NH, AlShahrani FS, *et al.* Coronavirus disease2019 pandemic in the Kingdom of Saudi Arabia: Mitigation measures and hospital preparedness. *J Nat Sci Med* 2020;3:155-8.
3. Asadi S, Bouvier N, Wexler AS, Ristenpart WD. The coronavirus pandemic and aerosols: Does COVID-19 transmit via expiratory particles? *Aerosol Sci Tech* 2020;54:635-8.
4. Haskell W, Lee I, Pate R, Powell K, Blair S, Franklin B, *et al.* Physical activity and public health: Updated recommendation for adults from the American college of sports medicine and the American Heart Association. *Circulation* 2007;116:1423-34.
5. Arem H, Moore SC, Patel A, Hartge P, De Gonzalez AB, Visvanathan K, *et al.* Leisure time physical activity and mortality: A detailed pooled analysis of the dose-response relationship. *JAMA Intern Med* 2015;175:959-67.
6. Wen CP, Wai JP, Tsai MK, Yang YC, Cheng TY, Lee MC, *et al.* Minimum amount of physical activity for reduced mortality and extended life expectancy: A prospective cohort study. *Lancet* 2011;378:1244-53.
7. Barwais FA, Cuddihy T, Washington T, Tomson ML, Brymer E. Development and validation of a new self-report instrument for measuring sedentary behaviors and light-intensity physical activity in adults. *J Phys Act Health* 2012;11:1097-4.
8. Hagstromer M, Oja P, Sjostrom M. The international physical activity questionnaire (IPAQ): A study of concurrent and construct validity. *Public Health Nutr* 2006;9:755-62.
9. Craig CL, Marshall AL, Sjöström M, Bauman AE, Booth ML, Ainsworth BE, *et al.* International physical activity questionnaire: 12-country reliability and validity. *Med Sci Sports Exerc* 2003;35:1381-95.
10. Cheng H. A Simple, Easy-to-use Spreadsheet for Automatic Scoring of the International Physical Activity Questionnaire (IPAQ) Short Form (updated November 2016). ResearchGate; 2016.
11. World Health Organization. Obesity: Preventing and Managing the Global Epidemic. World Health Organization Technical Report Series. Geneva: World Health Organization; 2000. p. 894.
12. Field A. Discovering statistics using SPSS. Thousand Oaks: Sage Publications Limited; 2009. p. 472-88.
13. Sañudo B, Fennell C, Sánchez-Oliver AJ. Objectively-assessed

- physical activity, sedentary behavior, smartphone use, and sleep patterns pre-and during-COVID-19 quarantine in young adults from Spain. *Sustainability* 2020;12:5890.
14. Cheval B, Sivaramakrishnan H, Maltagliati S, Fessler L, Forestier C, Sarrazin P, *et al.* Relationships between Changes in Self-reported Physical Activity and Sedentary Behaviours and Health during the Coronavirus (COVID-19) Pandemic in France and Switzerland. *Sport RXiv*; 2020.
 15. Orgilés M, Morales A, Delvecchio E, Mazzeschi C, Espada JP. Immediate Psychological Effects of the COVID-19 Quarantine in Youth from Italy and Spain. Available from: <https://www.psycharxiv.com/5bpfz>. [Last accessed on 2020 Sep 12].
 16. Bankoski A, Harris TB, McClain JJ, Brychta RJ, Caserotti P, Chen KY, *et al.* Sedentary activity associated with metabolic syndrome independent of physical activity. *Diabetes Care* 2011;34:497-3.
 17. Healy G, Dunstan D, Salmon J, Cerin E, Shaw J, Zimmet P, *et al.* Breaks in sedentary time. *Diabetes Care* 2008;31:661-6.
 18. Zhu W. Should, and how can, exercise be done during a coronavirus outbreak? An interview with Dr. Jeffrey A. Woods. *J Sport Health Sci* 2020;9:105-7.
 19. Nieman DC, Wentz LM. The compelling link between physical activity and the body's defense system. *J Sport Health Sci* 2019;8:201-17.
 20. Davis J, Kohut M, Colbert L, Jackson D, Ghaffar A, Mayer E. Exercise, alveolar macrophage function, and susceptibility to respiratory infection. *J Appl Physiol* 1997;83:1461-66.
 21. Wong CM, Lai HK, Ou CQ, Ho SY, Chan KP, Thach TQ, *et al.* Is exercise protective against influenza-associated mortality? *PLoS One* 2008;3:1-8.
 22. Ferraro R, Boyce VL, Swinburn B, De Gregorio M, Ravussin E. Energy cost of physical activity on a metabolic ward in relationship to obesity. *Am J Clin Nutr* 1991;53:1368-71.
 23. Thiel A, Thedinga HK, Barkhoff H, Giel K, Schweizer O, Thiel S, *et al.* Why are some groups physically active and others not? A contrast group analysis in leisure settings. *BMC Public Health* 2018;18:377-91.
 24. Giustino V, Parroco AM, Gennaro A, Musumeci G, Palma A, Battaglia G. Physical activity levels and related energy expenditure during COVID-19 quarantine among the Sicilian active population: A cross-sectional online survey study. *Sustainability* 2020;12:4356-60.
 25. Ammar A, Brach M, Trabelsi K, Chtourou H, Boukhris O, Masmoudi L, *et al.* Effects of COVID-19 home confinement on eating behaviour and physical activity: Results of the ECLB-COVID19 international online survey. *Nutrients* 2020;12:1583-96.
 26. Guthold R, Stevens GA, Riley LM, Bull FC. Worldwide trends in insufficient physical activity from 2001 to 2016: A pooled analysis of 358 population-based surveys with 1.9 million participants. *Lancet Glob Health* 2018;6:e1077-86.
 27. Górnicka M, Drywień ME, Zielinska MA, Hamułka J. Dietary and lifestyle changes during COVID-19 and the subsequent lockdowns among Polish adults: A cross-sectional online survey PLifeCOVID-19 study. *Nutrients* 2020;12:2324-30.
 28. Alzamil HA, Alhakhbany MA, Alfadda NA, Almusallam SM, Al-Hazzaa HM. A profile of physical activity, sedentary behaviors, sleep, and dietary habits of Saudi college female students. *J Fam Community Med* 2019;26:1-8.
 29. Albawardi NM, Jradi H, Almalki AA, Al-Hazzaa HM. Level of sedentary behavior and its associated factors among Saudi women working in office-based jobs in Saudi Arabia. *J Environ Res Public Health* 2017;14:659-72.
 30. Kassir R. Risk of COVID-19 for patients with obesity. *Obes Rev* 2020;21:13034.

How to cite this article: Barwais FA. Assessing physical activity and sedentary time during the COVID-19 pandemic using self-reported measurement. *Natl J Physiol Pharm Pharmacol* 2020;10(11):1019-1024.

Source of Support: Nil, **Conflicts of Interest:** None declared.