



## Importance of physical activity awareness within Saudi high risk patient during home quarantine

Mohammad Zubair<sup>1</sup>✉, Sarah M. Alanzi<sup>2</sup>, Yasir M. Alhusayni<sup>2</sup>, Danah M. Alqassimi<sup>2</sup>, Smookh H. Alshehry<sup>2</sup>, Ayshah J. Alshehry<sup>2</sup>, Farha Fatima<sup>3</sup>

<sup>1</sup>Department of Medical Microbiology, Faculty of Medicine, University of Tabuk, Tabuk 71491, KSA

<sup>2</sup>Medical Student, Faculty of Medicine, University of Tabuk, Tabuk 71491, KSA

<sup>3</sup>Department of Zoology, Faculty of Life Science, Aligarh Muslim University, Aligarh, India

### ✉Corresponding author

Department of Medical Microbiology, Faculty of Medicine,  
University of Tabuk, Tabuk 71491,  
Kingdom of Saudi Arabia;  
Email: mohammad\_zubair@yahoo.co.in

### Citation

Mohammad Zubair, Sarah M. Alanzi, Yasir M. Alhusayni, Danah M. Alqassimi, Smookh H. Alshehry, Ayshah J. Alshehry, Farha Fatima. Importance of physical activity awareness within Saudi high risk patient during home quarantine. *Medical Science*, 2020, 24(106), 4258-4263

### ABSTRACT

**Background:** COVID-19 is the new coronavirus and most cases appeared in the Chinese city, Wuhan. At the end of December 2019 in the form of acute pneumonia. Older people and people with pre-existing medical conditions (such as obesity, diabetes, and heart disease) appear to be more vulnerable to becoming severely ill with the virus. However, there are a lot of studies have shown a misconception regarding COVID-19 among different communities. This study was conducted in Kingdom of Saudi Arabia to measure the level of awareness, knowledge, and behaviors toward physical activity. **Methods:** A cross sectional study was conducted in 13 provinces in kingdom of Saudi Arabia in year 2020, during a period of 20 days. A three hundred thirty seven Saudi citizen were included; using an electronic questionnaire to collect data. Data entry and analysis were performed using Microsoft Excel. **Results:** The prevalence of physical inactivity among participants is very high. The commonest reason for not using walking permission during the pandemic is fear of catching infection. We found very high significance between males and females regarding physical activity rate before the pandemic and males will have double chance to have their disease complicated. Regarding the effect 31% reported that their life is affected by stress and fear of catching infection. **Conclusion:** From this study we conclude that physical inactivity is highly prevalent among Saudi high risk patient. We recommend holding awareness campaigns in an unconventional way and adding physical activity to treatment plans for patients. Also, we recommend building government sports centers within neighborhoods to encourage residents to exercise more.

**Keywords:** Covid-19, exercise, quarantine

## 1. INTRODUCTION

The World Health Organization (WHO) in May 2020, declared the latest coronavirus which is also known as COVID-19, as a pandemic (Sohrabi et al., 2020). The transmission of the disease was fast and in a very short period of time it is transmitted to several countries (Sheridan, 2020). As a result, several nations around the globe have introduced quarantine policies as a tactic to minimize the rapid spread of the disease (Anderson et al., 2020). The epidemic affected China's entire cities; however it was efficiently managed by a nationwide quarantine which was imposed on millions of people to stay at home. Possible health implications due to the involuntary widespread quarantine must be illustrated through various viewpoints pertaining to clinical illnesses, emotional consequences, obesity and physical de-conditioning (ECDC, 2020). The WHO in their statement stated that individuals aged 18 to 64 years must perform aerobic physical exercise of medium-intensity for at least 150 minutes over a week or aerobic physical exercise of aggressive-intensity for at least 75 minutes over a week or an equal mix of medium-and aggressive-intensity exercise (WHO, 2020). Lockdown has ruined the lives of all generations all around the globe. The outbreak of COVID-19 does not impact all people of the same magnitude. Elderly individuals and individuals with underlying health issues (like heart disease, obesity and diabetes) tend to be more susceptible to being seriously sick with the virus.

Evidence has shown that when an adult is off work, such as for holidays and weekends, they are physically less active, eat unhealthy foods, have longer screen times, and have irregular sleep time; all of which are associated with muscle weakness, weight gain and obesity. Such negative effects on health status are likely to be much worse when confined to homes without outdoor activities specifically physical exercise during an outbreak (Gasol Foundation, 2020). Study by Brooks *et al.* (2020) highlights that the psychological impact was high among people during quarantine. In Saudi Arabia, COVID-19 risk is high hence the country implements various restrictions to travel and other outdoor activities (CDC, 2020a; Kalin and Hassan, 2020). As a result, people in Saudi suffering from obesity risk (Arab News, 2020a). In light of all this, the hospital staff thought it was important to come up with measures and strategies that could aid quarantine individuals to minimize their overweight and the health problems induced by lockdown (Godinic, Obrenovic and Khudaykulov, 2020). For individuals it is critical to have some physical activity, in particular to retain the degree of mobility (Twenge, 2020), psychological well-being and health (Godinic, Obrenovic and Khudaykulov, 2020). Physical idleness amongst elderly people is the fourth highest major cause of mortality globally and a big factor to disability (Coholic, Schwabe and Lander, 2020). The threat of physical deterioration is higher in individuals that do not participate in daily physical activity (Szabo et al., 2020). It is also important to preserve autonomy in elder years, as the decrease of independence in elderly people can be predicted (Coholic et al., 2020). Lack of physical movement throughout the lockdown phase can thus have negative impacts on the emotional and mental health of elderly people (Holmes et al., 2020).

Understanding this condition, Saudi government execute one hour walk daily at the curfew period (Al-Amir, 2020). In addition to this, Health Ministry of Saudi Arabia implements "#Walk30" campaign to raise understanding of the value of exercise and the advantages of walking. The goal of the national walking campaign is to increase the number of individuals that walk from 17 to 35%, encourage public health, promote the practice of walk and help the people who have been hurt or at risk of recurrent sickness (Arab News, 2020b). As per the initiative, the programme aims to boost general health by reducing cholesterol levels and maintaining muscle and joint power. Moving also enhances the attitude and decreases depression and anxiety. It consumes additional calories and increases the blood circulation to keep in shape and prevent infection. As per the report by (Alahmed, Yusof and Shah, 2016), The Saudi Universities Sports Federation (SUSF) intends to maximize physical exercise among people. From the existing reports, it is understood that older adults and some young people who have poor immune system are more vulnerable to this virus (CDC, 2020b; Joseph, 2020) and there are a number of research have also shown misperception of COVID-19 between diverse societies (Kasozi et al., 2020).

Therefore, this study was conducted in Kingdom of Saudi Arabia to measure the level of awareness, knowledge, and behaviors toward physical activity.

## 2. MATERIALS AND METHODS

### Study design and setting

A cross sectional study was conducted in the 13 provinces of Kingdom of Saudi Arabia in 2020, during a period of 20 days.

### Study participant and sample size

Every patient who have been diagnosed with one of the chronic diseases (High blood pressure, Diabetes and cardiovascular disease) except patients are refuse to participate in the study. The sample size was calculated by Kish formula: where:  $n = (Z 1-\alpha)^2 (P(1 - P) / D^2 Z_{1-\alpha} = 1.962$ , the prevalence High blood pressure, diabetes and cardiovascular disease was assumed to be 32.5%. So,  $p = 0.325$ ,

the minimum calculated sample size with 5% error and 95% confidence interval = 337 patients needed to be included in the study. The online questionnaire was sent to 411 patients and the response rate was 97.7%.

### Data collection tool

The data was collected using an electronic questionnaire which was distributed among 13 provinces in kingdom of Saudi Arabia. Questionnaire was designed according to the three sections:

A: Sociodemographic variables such as age, sex, region, height and weight

B: Medical condition of the participant: questions about the patients chronic diseases and immunity diseases.

C: Participant behaviour: questions about the effect of the corona pandemic on the physical activity of the patient. If the patient used to practices the physical activity before the pandemic and the impact on the participant lifestyle.

### Ethical consideration

In our research, we collected data using electronic questionnaires and this research ensured that patient participation is completely voluntary. No personal information was requested

### Data management and analysis

Data entry and analysis were performed by using SPSS 16 software.

## 3. RESULTS

**Table 1** Gender-Based difference regarding PA

	Diagnosed with chronic disease				Physically active			
	Yes		No		Yes		No	
	%	n	%	n	%	n	%	n
Female	30.1	119	31.3	124	44	174	17.4	69
Male	27.5	109	10.8	43	24	95	14.4	57

Table 1 shows the gender based difference towards physical activity and diagnosis of chronic disease. According to the table it is clear that 30.1% female was diagnosed with chronic disease at the time of research and male (27.5%) was also noted. But compared to male, females are majorly diagnosed with chronic disease. However, the highest of 31.3% female was not diagnosed with chronic disease. With respect to physically active, female (44%) was more active than male (24%) during research period.

**Table 2** Covid-19 pandemic effect on individual lifestyle (Gender-Based)

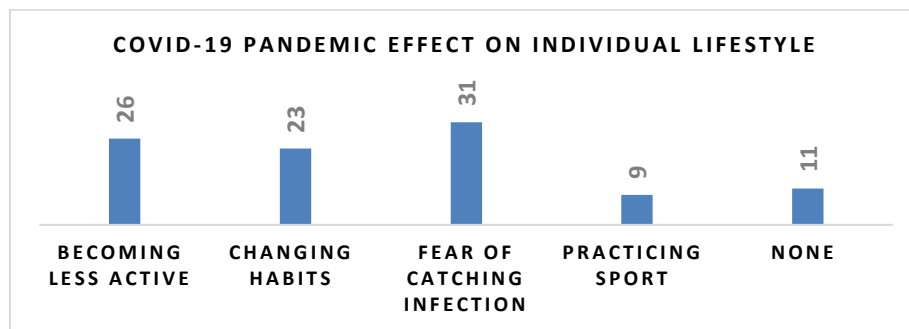
Value	Male		Female	
	%	(n)	%	(n)
Becoming less active	18.48	73	27.5	109
Changing habits	15.44	61	24.03	96
Fear of catching infection	21.77	86	30.1	119
Practicing sport	6.5	26	7.8	31
None of the above	6.3	25	13.6	54

Table 2 represents that the Covid-19 pandemic effect on individual lifestyle in terms of gender-specific. When compared to male, female was highly impacted on pandemic because the result shows that they are less active at 27.5%, changing habits (24.03%), fear of catching infection (30.1%) and practicing sport (7.8%). However, none of the above impacts was also observed among 13.6% of female. The same impact was less among male participant but it was somewhat noticed as they are less active at 18.48%, changing habits (15.44%), fear of catching infection (21.77%) and practicing sport (6.5%).

**Table 3** Covid-19 pandemic effect on individual lifestyle

Value	Frequency	Percentage
Becoming less active	174	26
Changing habits	151	23

Fear of catching infection	203	31
Practicing sport	56	9
None of the above	73	11



**Figure 1** Frequency of Covid-19 pandemic effect on individual lifestyle.

Table 3 and fig.1 presents the Covid-19 pandemic effect on individual lifestyle in general. Findings shows that generally individuals are fear of catching infection at 31%, 26% is less active, 23% has changing habits and only 9% of them are practicing sport. However, none of the above impacts was also observed among 11% of respondents. It highlights majority of them are female (n=253) and male (n=158).

#### 4. DISCUSSION

Quarantine is a compulsory social limitation on movements of people, and so it is anticipated that the routine athletic events will be halted; likewise, basic everyday responsibilities involving physical movement. The correlation among the fitness and the health is becoming evident and apparent as exercise helps the heart, lungs, and increases circulation of the blood through the body. The benefits of physical activity to people of all ages is not subject to debate since the physiological and medical effect is well established and accepted. Present patterns in physical activity studies warrant comprehensive application. There is a substantial increase in research that the overall risk factor for health conditions is associated to the level of physical inactivity. Physical exercise aids decrease the risk of cardiovascular disease, which includes coronary artery disease, elevated cholesterol, and cardiac arrest. It also influences the mechanism of metabolism (Gasol Foundation, 2020; Kluge, 2020). Since these, research outcome might indicate that there is an optimal period of time that an individual must be invested in doing physical activity to encourage or improve health benefits, and also there is few research that indicated there is an optimal period of time spent by individuals on relaxing, contributing to sedentary behavior which is more probably to evolve into chronic condition. The key point, however, is that physical exercise is not enough (González, Fuentes and Márquez, 2017).

The findings of the study shows that majority of female (44%) was physically active than male (24%) during research period. Hence they have less chronic disease than male during quarantine period. A close correlation among the fitness activities and health has been strongly discussed in the scientific community and it also stressed by the research of WHO (2020). Several medical trials have closely connected poor and good medical conditions to the level and length of physical activity of the individuals (ECDC, 2020; Menard and Liu, 2020). Physical activity and fitness can be treated as medical care due to the various health benefits associated with it. As in certain cases of chronic conditions, the medical benefits of exercise and physical activity outweigh the health advantages of traditional medicines. Due to the lack of these activities among individuals at the Covid-19 virus period, there is a severe health impact was observed. Findings showed that 30.1% female was diagnosed with chronic disease at the time of research and male of 27.5% was noted. However, the highest of 31.3% female was not diagnosed with chronic disease. This evidenced that male was highly affected to chronic diseases than male. Some reports also evidenced the same (Alsofayan *et al.*, 2020; Hilton, 2020).

Though our finding points out that when compared to male, female was highly impacted on pandemic because the result shows that they are less active at 27.5%, changing habits (24.03%), fear of catching infection (30.1%) and practicing sport (7.8%). This further clearly explains that female is not properly involved in any physical activities than male during quarantine period. Even though male are dominantly affected the symptoms of Covid-19 but they make some physical activities to manage the situation. Among the pandemic effect, the majority of the individuals are having fear of catching infection, less active, changing habits and least of them are involved in practicing sport. Hence it is recommended that the Saudi people need some awareness and knowledge about the importance of physical activity then only their behaviour would be changed towards enhancing their physical practices. Unlike conventional medicines which obscure the symptoms and signs or abnormally alter physiological functioning, fitness, on the

other side, alters the mechanisms involved for physiological functioning. Physical activities (PA) are also known to be the primary and secondary treatments for the prevention of chronic disease (Durstine *et al.*, 2013).

## 5. CONCLUSION

Both male and female have examined that the quarantine impact the lifestyle of individuals in different ways like creating fear about the infection, less active, changing habits and less involvement in practicing sport. But the findings showed the Saudi people especially female are more physically active than male. Hence they are less diagnosed with chronic disease than male evidenced that male are more vulnerable for Covid virus. Therefore this study recommended to policymakers to create awareness and knowledge about physical activity more to male than female in Saudi Arabia thus reduce the impact of pandemic. The results from this study might provide to health policymakers evidence about the psychological and emotional influences of quarantine among Saudi individuals so that they might produce an important guideline for managing the individual's quarantine. Indeed, this study believes that the current results indicate the need for physical activity awareness for everyone while they are quarantined. This goal could be achieved by creating campaign activities.

**Limitations and recommendations:** Data were obtained using an online survey and therefore it is important to combine paper and digital surveys in future research in order to achieve a bigger number of sample size. The research also aims to ask further questions about the information source, the mindset and the level of physical activity.

**Acknowledgement:** We thank all the participants for completed the data survey and contributed into this study.

### Author Contributions

MZ & FF: Conception, analysis, drafting, approval of the final version.

SMA, YMA, DMA, SHA, AJA: Conception, design, data acquisition.

**Funding:** This study has not received any external funding.

**Conflict of interest:** Authors declare no conflict of interest

**Ethical Approval:** This study was approved by Institutional research ethics Committee of the Faculty of Medicine, university of Tabuk with approval no READ 0100.

## REFERENCES AND NOTES

1. Alahmed M, Yusof A. and Shah P M. Mediating role of academic attitude on sports participation and academic performance. *International Journal of Physical Education, Sports and Health* 2016;3(4):306–309.
2. Al-Amir, K. (2020) 'COVID-19: Saudi Arabia to allow one-hour walk amid curfew. *Gulf News* 2020; 25 May. Available at: <https://gulfnews.com/world/gulf/saudi/covid-19-saudi-arabia-to-allow-one-hour-walk-amid-curfew-1.71677140>.
3. Alsafyan YM, Althunayyan SM, Khan AA., et al. Clinical characteristics of COVID-19 in Saudi Arabia: A national retrospective study. *Journal of Infection and Public Health*. 2020; 13(7): 920–925.
4. Anderson RM, Heesterbeek M, Klinkenberg D, Hollingsworth DT. How will country-based mitigation measures influence the course of the COVID-19 epidemic?'. *The Lancet* 2020; 395(10228): 931–934.
5. Arab News. Obesity "a key factor in fight against coronavirus"', *Arab News* 2020a 25 July. Available at: <https://www.arabnews.com/node/1709946/world>.
6. Arab News. Walk on: Health Ministry initiative encourages active lifestyles in Saudi Arabia', *Arab News* 2020b; 18 February. Available at: <https://www.arabnews.com/node/1629851/saudi-arabia>.
7. Brooks S K, Webster RK, Smith LE, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet* 2020;395(10227): 912–920.
8. CDC (2020a) COVID-19 in Saudi Arabia, Centers for Disease Control and Prevention. Available at: <https://wwwnc.cdc.gov/travel/notices/warning/coronavirus-saudi-arabia> (Accessed: 6 September 2020).
9. CDC (2020b) People with Certain Medical Conditions, Centers for Disease Control and Prevention. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html> (Accessed: 6 September 2020).
10. Coholic D, Schinke R, Oghene O and Dano K. Arts-based interventions for youth with mental health challenges', *Journal of Social Work* 2020; 20(3): 269–286.

11. Coholic D, Schwabe N, and Lander K. A Scoping Review of Arts-Based Mindfulness Interventions for Children and Youth. *Child and Adolescent Social Work Journal* 2020;37:511-526.
12. Durstinea JL, Gordona B, Wang Z, Luo X. Chronic disease and the link to physical activity', *Journal of Sport and Health Science* 2013;2(1): 3–11.
13. ECDC (2020) Coronavirus disease 2019 (COVID-19) in the EU/EEA and the UK – eighth update. Solna Municipality, Sweden. Available at: <https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-rapid-risk-assessment-coronavirus-disease-2019-eighth-update-8-april-2020.pdf>.
14. Emily A Holmes, Rory C O'Connor, Hugh Perry, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry* 2020; 7(6); 547–560.
15. Gasol Foundation (2020) Coronavirus Quarantine: How Covid-19 Affects Childhood Obesity, Healthy Habits And Vulnerable Populations, Gasol Foundation. Available at: <https://www.gasolfoundation.org/coronavirus-quarantine-how-covid-19-affects-childhood-obesity-healthy-habits-and-vulnerable-populations/> (Accessed: 6 September 2020).
16. Godinic D, Obrenovic B., and Khudaykulov A. Effects of Economic Uncertainty on Mental Health in the COVID-19 Pandemic Context: Social Identity Disturbance, Job Uncertainty and Psychological Well-Being Model', *International Journal of Innovation and Economic Development* 2020; 6(1): 61–74.
17. González K, Fuentes J. and Márquez J L. Physical Inactivity, Sedentary Behavior and Chronic Diseases', *Korean Journal of Family Medicine* 2017; 38(3): 111.
18. Hilton T. Why is coronavirus killing more men than women?, *Al Arabiya* 2020. Available at: <https://english.alarabiya.net/en/features/2020/04/05/Why-is-coronavirus-killing-more-men-than-women-> (Accessed: 7 September 2020).
19. Joseph A. For people with underlying health conditions, the coronavirus presents “all the ingredients” for danger', *Stat News*, 23 March 2020. Available at: <https://www.statnews.com/2020/03/23/for-people-with-some-health-conditions-and-suppressed-immune-systems-the-coronavirus-is-a-life-threatening-danger/>.
20. Kalin S and Hassan S. Saudi Arabia restricts movement, other Gulf States limit entry as coronavirus spreads, *Reuters* 2020. Available at: <https://www.reuters.com/article/us-health-coronavirus-gulf/saudi-arabia-restricts-movement-other-gulf-states-limit-entry-as-coronavirus-spreads-idUSKBN2120FL> (Accessed: 6 September 2020).
21. Kasozi KI, Leod EM, Ssempijja F, et al. Misconceptions on COVID-19 Risk Among Ugandan Men: Results From a Rapid Exploratory Survey, April 2020', *Frontiers in Public Health* 2020; 8: 416.
22. Kluge H H P. Statement – Older people are at highest risk from COVID-19, but all must act to prevent community spread, *World Health Organization* 2020. Available at: <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/statements/statement-older-people-are-at-highest-risk-from-covid-19,-but-all-must-act-to-prevent-community-spread> (Accessed: 7 September 2020).
23. Menard A and Liu L A. Study Guide to the Systems of the Body, *ACLS Training Center* 2020. Available at: <https://www.acls.net/study-guide-body-systems.htm> (Accessed: 7 September 2020).
24. Sheridan C. Fast, portable tests come online to curb coronavirus pandemic', *Nature Biotechnology* 2020; 38(5): 515–518.
25. Sohrabi C, Alsafi Z, O'Neill N, et al. World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19)', *International Journal of Surgery* 2020; 76: 71–76.
26. Szabo TG, Richling S, Embry DD, et al. From Helpless to Hero: Promoting Values-Based Behavior and Positive Family Interaction in the Midst of COVID-19. *Behavior Analysis in Practice* 2020; 13(3): 568–576.
27. Twenge J M. Why increases in adolescent depression may be linked to the technological environment. *Current Opinion in Psychology* 2020; 32: 89–94.
28. WHO. Global Strategy on Diet, Physical Activity and Health, *World Health Organization* 2020. Available at: [https://www.who.int/dietphysicalactivity/factsheet\\_adults/en/](https://www.who.int/dietphysicalactivity/factsheet_adults/en/) (Accessed: 6 September 2020).

#### Data and materials Availability

All data associated with this study are present in the paper.

#### Peer-review

External peer-review was done through double-blind method.

#### Article History

Received: 01 October 2020

Reviewed & Revised: 03/October/2020 to 11/November/2020

Accepted: 11 November 2020

E-publication: 19 November 2020

P-Publication: November - December 2020

#### Publication License



This work is licensed under a Creative Commons Attribution 4.0 International License.

#### General Note



We recommended authors to print article as color digital version in recycled paper. Discovery Scientific Society will not provide any prints for subscription.