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## A survey on impact of COVID-19 pandemic on exercise practices of healthcare workers in Maharashtra

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### Abstract

A survey was conducted using a validated questionnaire regarding exercise practices of healthcare workers in the state of Maharashtra. The sample size was 304 out of which 52.3% were practicing doctors including surgeons and physicians, 9.54% were dentist, 28.62% physiotherapists and remaining 9.54% were nurses. 61.5% of professionals reported COVID-19 has caused a change in levels of their participation in physical activities. Amongst entire participants 29.6% reported increased participation in some form of exercises/physical activity during pandemic. 31.9% healthcare professionals acknowledged reduced engagement in physical activity since outbreak of the COVID-19 pandemic. 38.5% of total survey participants reported no change at all in their exercise practices. Chi squared test was applied during analysis.

**Keywords:** COVID-19, exercise, physical activity, healthcare workers, Maharashtra, lockdown

### Introduction

COVID-19 is the disease caused by coronavirus that emerged in China in December 2019 [1, 2]. Coronavirus disease outbreak started as a worldwide emergency. Its spread and high fatality led to several disruptions [3] to combat with this; countries all over the world were locked down. On 24<sup>th</sup> March, national lockdown was put in India for 21 days and it was extended till 31<sup>st</sup> May. Even as nation was locked down, Healthcare providers were serving the population, treating patients. COVID-19 heavily impacted global health and mental health [4]. These changes were bound to be seen not only in general population but also in healthcare professionals.

ACSM recommendations state that All healthy individuals with age 18–65 years should participate in moderate intensity aerobic physical activity for at least 30 mins, five days per week, or vigorous intensity aerobic activity for at least 20 mins for three days and all individuals should perform activities that maintain or increase muscular strength and endurance for a minimum of two days per week [5]. Various positive effects of physical activity and exercise such as increased immune response, better mental health, and reduced inflammation have been reported by studies [6].

Due to nature of their work, healthcare professionals have numerous interactions with people throughout their day, allowing them to be potential influence on their patients' lives. These healthcare professionals may become effective role models and become educators for health and wellness to patients, especially if they are pursuing exercise and healthy lifestyle themselves [7]. However, not all of them are pursuing active lifestyles [7]. Gates (2016) reported that way in which a physician regards physical activity and exercise can influence his or her attitude towards prescribing exercise as medicine to patients [8]. This would also include Physiotherapists and nurses who are bound to have multiple interactions with patients in consultation settings [9].

A study reported that COVID-19 home confinement has resulted in a decrease in all levels of physical activities and about 28% increase in daily sitting time [12]. Compulsion to stay at home for a long period of time poses a challenge to the continuity of physical fitness [13]. There is no data available about overall COVID-19 has caused on exercise practices of people over medical fraternity.

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**Materials and Methods**

A Descriptive, Cross-Sectional Study was conducted at Dr. APJ Abdul Kalam College of physiotherapy, PIMS, Loni on 304 healthcare professionals. Samples were included via Simple random Sampling. Among these 52.3% were practicing doctors 9.54% were dentist, 28.62% physiotherapists and remaining 9.54% were nurses. The sample consisted of 51.97% males and 48.03% of females.

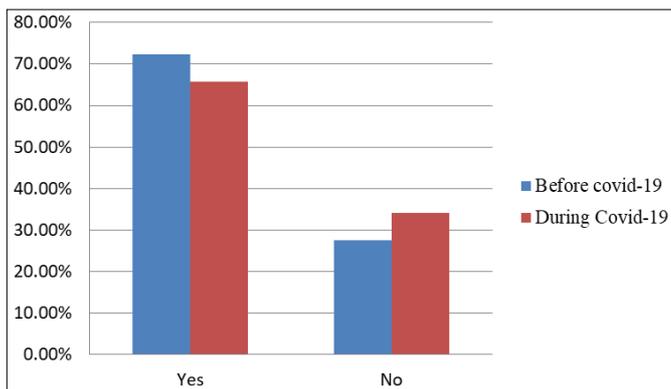
**Selection criteria**

Participants who were working as Doctors/Dentists/Physiotherapists/Nurses in a clinical/academic setting in Maharashtra at the time of survey were included. Participants who were not willing to give consent were excluded.

**Tools and Materials**

A questionnaire was created by us and validated by senior faculty members of Pravara Institute of medical sciences. Questionnaire consisted of 23 questions out of which 21 were objective (including demographic data) and 2 were open ended. This questionnaire was circulated amongst healthcare professionals in Maharashtra by using Google forms through social media apps like WhatsApp, Linked-in, Facebook, and Instagram etc. Responses were analyzed in excel sheet. Statistical test (chi-squared test) was applied.

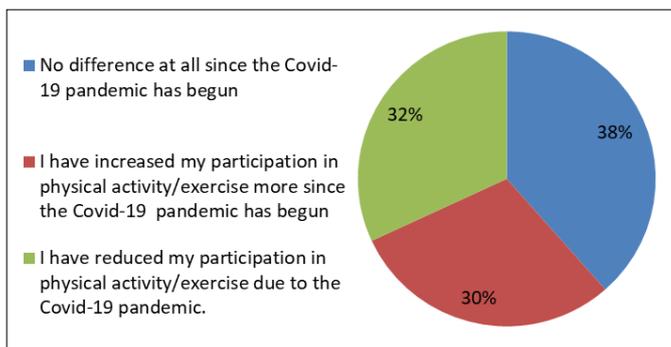
**Results**



**Fig 1:** Overall participation in physical activity

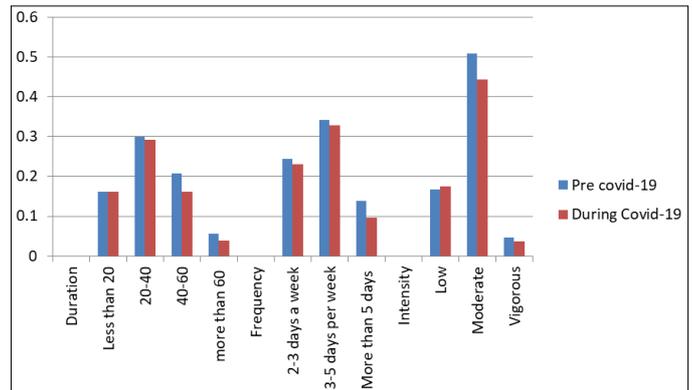
Results obtained from analysis depicted a decrease in participation in exercise regimen by healthcare professionals in Maharashtra during the Coronavirus Pandemic.

72.37% of healthcare professionals reported active participation in some form of physical activity before COVID-19 Pandemic which was reduced by 6.58% during pandemic. 37.50% professionals said that they were not exercising at all since outbreak of COVID-19.



**Fig 2:** Changes in physical activity due to pandemic

38.5% of total survey participants reported no change at all in their exercise practices whereas 61.5% agreed that COVID-19 caused a change in the levels of participation. 29.6% reported increased participation contrarily 31.9% acknowledged reduced engagement in physical activity since outbreak of COVID-19.



**Fig 3:** Exercise parameters

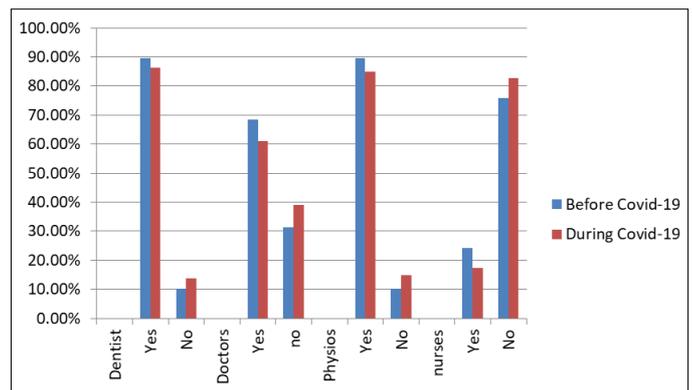
Also there were certain changes observed in intensity, duration, frequency and type of exercises preferred.

Number of exercising healthcare professionals for 40-60 mins i.e. 20.72% was reduced to 16.11%.

34.21% participants notified exercising for 3-5 days a week before pandemic which was observed to be 32.94% during pandemic. A fall of 4.29% was seen in number of professionals exercising 5 days a week and a hike of 1.32% in those exercising 2-3 days a week was seen during pandemic.

Participation in low intensity physical activity was 20.06% before and increased to 25.66% after outbreak. 52.63% of survey takers indicated participation in moderate intensity exercises before current pandemic and was declined to 48.02% during pandemic.

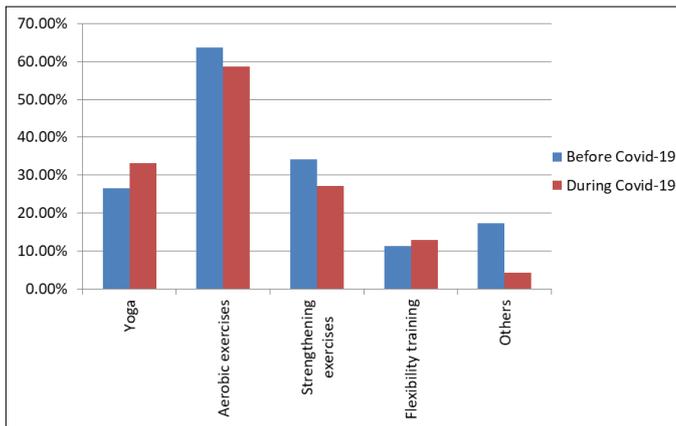
Only 4.6% participants amongst all professionals noted participating in vigorous physical activity before pandemic which was reduced to 3.62% during pandemic.



**Fig 4:** Participation in exercise

Dentists and Physiotherapists reported highest participation in physical activity before pandemic. 89.66% of dentists and physiotherapists taking part in the survey reported regular participation in physical activity before COVID-19. During pandemic this was decreased to 86.20% and 85.06% respectively for each profession, yet participation of dentist remained highest during pandemic. 68.55% doctors recounted exercising before pandemic and during pandemic it was observed to be fallen by 7.55%. Nursing professionals were observed to be least involved in physical activity both before

and during pandemic with former being 24.14% and the later 17.24%.



**Fig 5:** Type of exercise

Participation in Yoga rose by 6.6% whereas participation in all other forms of exercises was reduced. Aerobic exercise participation dropped by 5.1%. Participation in strength training activities reduced by 7% and in flexibility training by 1.5%. Most reduction was observed in other forms of exercise which include but not limited to recreational sports, Zumba, Tai-chi, dance workouts, Aerobic dance workouts.

#### Statistical analysis

Chi squared test was applied on exercise parameters for all 304 samples. Values obtained were: Frequency (6.23), Duration (8.40) and Intensity (6.08) indicating a significant change in the exercise practices pre and during the pandemic.

#### Discussion

COVID-19 outbreak caused diverse alterations in people's lives including healthcare professionals [12]. Overall participation of population in exercise across various countries was reported to be reduced [13, 14]. This was true for both adults and children [15, 16].

Survey conducted in this study specifically designed for healthcare professionals showed similar results as surveys in general populations. Approximately one third of the population increased their physical activity, one third reduced, and the remaining one third reported no change, amongst these, there were a few individuals who were not exercising before pandemic and they continued doing so, and a few who followed same regimen before and after pandemic. Pandemic made majority of healthcare professionals change their exercise practices and patterns. Reasons for alterations were observed to be mainly lack of time, increased workload due to pandemic and busy schedules caused by it for each profession. These reasons varied than those seen in general population which were lockdown and in turn shutting of fitness centers and gyms, recreational sports centers [13].

Few doctors who had increased participation reported that fear of getting infection themselves made them more health-cautious and as a result they exercised more. Exercise as a way of stress release was also reported as a driving factor by some. Increase in workload and lack of free time were reasons observed behind the decrease in participation of doctors.

Physiotherapists and dentist both reported highest participation in physical activity before pandemic. Physical activity promotion and awareness in physiotherapist is essential as active healthcare professionals are conducive to promotion of PA in general population [17, 18].

Amongst all professionals, Dentists had maximum participation in physical activity before pandemic. A few dentists reported increase in physical activity and participation attributed it to leisure time that was available to them now because of lockdown.

Exercise regimens were least followed by nurses both before and during COVID-19 who reported being overworked and lack of time for exercise. Nursing professionals were less active than rest of the professionals; they perceived fewer benefits and more barriers to exercise and reported lower availability of time for exercising. This was observed in previous research conducted in countries like United kingdom<sup>19</sup> and efforts to promote physical activity in nurses have been observed to be needed worldwide [20-22].

In conclusion we suggest that strategies should be implied in order to promote physical activity in Maharashtra during the pandemic, considering that benefits of exercise and physical activity outweigh risk of infection [6].

#### Conclusion

COVID-19 pandemic has caused a major impact on exercise practices of healthcare professionals in Maharashtra. 61.5% agreed that COVID-19 caused a change in levels of participation in physical activities. Amongst all participants 29.6% reported increased participation in some form of exercises/physical activity during pandemic. 31.9% healthcare professionals acknowledged reduced engagement in physical activity since outbreak of COVID-19 pandemic. 38.5% of total survey participants reported no change at all in their exercise practices.

#### References

1. Information released by the World Health Organization (WHO) on COVID-19 Pandemic. To access visit: [www.who.int/COVID-19/information](http://www.who.int/COVID-19/information): 2019
2. Heng Li *et al.* Coronavirus disease 2019 (COVID-19): current status and future perspectives: Int J Antimicrob Agents 2020;55(5):105951. Published online 2020. doi:10.1016/j.ijantimicag.2020.105951 PMID: PMC7139247 PMID: 32234466
3. Li Yang *et al.* COVID-19: immunopathogenesis and Immunotherapeutic Signal Transduction and Targeted Therapy 2020;5:128.
4. Torales Julio. The outbreak of COVID-19 coronavirus and its impact on global mental health 2020.
5. American College of Sports Medicine. ACSM's guidelines for exercise testing and Prescription. Lippincott William and Wilkins 2017.
6. Dominski Hech Fabio, Ricardo Brandt. Do the benefits of exercise in indoor and outdoor environments during the COVID-19 pandemic outweigh the risks of infection?
7. Kosteva AR, Salata BM, Krishnan SM, Howe M, Weber A, Rubenfire M, Jackson EA. Physician variation in perceived barriers to personal health. Int J Gen Med 2012;5:53-7. doi: 10.2147/IJGM.S23806. Epub 2012. PMID: 22287847; PMID: PMC3265992.
8. Douglas F, Torrance N, Teijlingen EV, Meloni Kerr S. Primary care staff's views and experiences related to routinely advising patients about physical activity. A questionnaire survey. BMC Public Health 2006;6:138-48.
9. Khan Aslam Durdana *et al.* Attitude Towards Physical Activity: A Comparative Study among Doctors and Physical Therapists.
10. McGrady FP *et al.* Questionnaire survey of Physical activity in General Practitioners (PHIT GP Study). Ulster

Med J 2007;76:91-7.

11. Roberts Zoë. Exercise Is Medicine: The Exercise Habits and Attitudes Towards Exercise Counseling of Medical Practitioners: Eastern Illinois University 2017.
12. Ammar A, Trabelsi K, Brach M, Chtourou H, Boukhris O, Masmoudi L *et al.* Effects of home confinement on mental health and lifestyle behaviour during the COVID-19 outbreak: Insight from the ECLB-COVID19 multicenter study. *Biol. Sport* 2020;38:9–21. 10.5114/biol sport.2020.96857
13. Kaur Harleen *et al.* “Physical Fitness and Exercise During the COVID-19 Pandemic: A Qualitative Enquiry.” *Frontiers in psychology* 2020;11:590172. doi:10.3389/fpsyg.2020.590172
14. Nienhuis CP, Lesser IA. The Impact of COVID-19 on Women's Physical Activity Behavior and Mental Well-Being. *International journal of environmental research and public health* 2020;17(23):9036. <https://doi.org/10.3390/ijerph17239036>
15. Kirsten Tulchin-Francis *et al.* The impact of the coronavirus disease 2019 pandemic on physical activity in US children, *Journal of Sport and Health Science* 2021. ISSN 2095-2546. <https://doi.org/10.1016/j.jshs.2021.02.005>.
16. Duntun GF, Do B, Wang SD. Early effects of the COVID-19 pandemic on physical activity and sedentary behavior in children living in the U.S. *BMC Public Health* 2020;20:1351. <https://doi.org/10.1186/s12889-020-09429-3>
17. Lowe A, Littlewood C, McLean S, Kilner K. Physiotherapy and physical activity: a cross-sectional survey exploring physical activity promotion, knowledge of physical activity guidelines and the physical activity habits of UK physiotherapists. *BMJ Open Sport Exerc Med* 2017;3(1):e000290. doi: 10.1136/bmjsem-2017-000290. PMID: 29119004; PMCID: PMC5663264.
18. Lowe A, Littlewood C, McLean S, Kilner K. Physiotherapy and physical activity: a cross-sectional survey exploring physical activity promotion, knowledge of physical activity guidelines and the physical activity habits of UK physiotherapists. *BMJ Open Sport Exerc Med* 2017;3(1):e000290. doi: 10.1136/bmjsem-2017-000290. PMID: 29119004; PMCID: PMC5663264.
19. Blake Holly, Stanulewicz Natalia, McGill Francesca. Predictors of physical activity and barriers to exercise in nursing and medical students. *Journal of Advanced Nursing* 2016;73:917–929. 10.1111/jan.13181.
20. Otto A, Pietschmann J, Appelles L *et al.* Physical activity and health promotion for nursing staff in elderly care: a study protocol for a randomised controlled trial *BMJ Open* 2020;10:e038202. Doi: 10.1136/bmjopen-2020-038202
21. Douglas F, Van Teijlingen E, Torrance N, Fearn P, Kerr A, Meloni S. Promoting physical activity in primary care settings: health visitors' and practice nurses' views and experiences. *J Adv Nurs* 2006;55(2):159-68. doi: 10.1111/j.1365-2648.2006.03903.x. PMID: 16866808.
22. Javanainen-Levonen, Tarja, Rintala Pauli, Poskiparta Marita. Physical activity promotion in public health nursing practice with children. *Primary Health Care Research & Development* 2007;8:355-366. 10.1017/S1463423607000357.