



**ORIGINAL RESEARCH PAPER**

**Physiotherapy**

**EFFECTS OF INCREASED ONLINE TEACHING ON HEALTH AND THEIR COPING STRATEGIES AMONG COLLEGE PROFESSORS OF VADODARA REGION – A CROSS-SECTIONAL STUDY**

**KEY WORDS:** Covid-19 pandemic, Online teaching, College Professors, Health issues, Coping Strategies,

**Dr Monali Soni** (PT), Assistant Professor, BITS Institute of Physiotherapy, Varnama, Vadodara

**Dr Purvi Shah\*** (PT), Assistant Professor, BITS Institute of Physiotherapy, Varnama, Vadodara  
\*Corresponding Author

**Dr Mansi Patel** (PT), Assistant Professor, BITS Institute of Physiotherapy, Varnama, Vadodara

**ABSTRACT**

The Government of India imposed country-wide lockdown from 25th March 2020 to avoid chain/community transmission of Corona virus in humans. During this Covid-19 pandemics, the educational institutes are also closed since then & traditional classroom teaching switched to online teaching to compensate the educational losses. But, the consequences of increased online teaching on professors' health cannot be ignored. Thus this study aims to find out the effects of online teaching on the health and coping mechanisms adopted by them. This cross-sectional study was conducted on 150 college professors of Vadodara region & were evaluated on health constraints and coping strategies through an online questionnaire. The study concluded that increased online teaching has created a huge impact on physical & mental health of college professors & they have learnt to overcome the distress caused due to same.

**I. INTRODUCTION**

The COVID-19 pandemic has led teachers to an unpredictable scenario where the lockdown situation has accelerated the shift from traditional to online educational methods, and relationships have been altered by the avoidance of direct contact with the others, with implications for their mental health. Physical activity seemed to be a factor that could prevent mental disorders such as anxiety or depression in this peculiar situation. The link between physical activity and mental well-being is clear. Physical activity is a key, critical way to manage mental health well-being and it is important that we as physiotherapists promote this to people, regardless of them having a diagnosed mental health condition.<sup>1</sup> Studies have shown that enforced sedentary behavior has led to depressive feelings and low moods in healthy people within seven days<sup>2</sup>. Taking into consideration the current situation worldwide with countries in enforced periods of lockdown and isolation, this may potentially have a mammoth impact on the mental well-being of many people and even more so if they do not engage in any form of physical activity.

Most literature emphasize on impact of online teaching on physical & mental health, but very few studies depict the coping strategies adopted to deal with the health issues. According to the Great Britain Labour Force Survey (2016), work-related musculoskeletal disorders (WMSDs) constitute 41% of the total work-related illnesses and are accounted for 34% of absenteeism due to work-related illnesses.<sup>3</sup> Therefore, the aims of this study were to explore how teachers have been affected by the increased online teaching with respect to their physical & mental health & how they cope with health problems.

**II. MATERIALS AND METHODS**

This is a cross-sectional study aiming to find out prevalence of various health issues and the coping strategies adopted by college professors to minimize the related problems. Online Questionnaires in form of Google Forms were sent to professors of various colleges of Vadodara region. Informed consent was taken from all respondents prior to study.

The questionnaire composed of demographic details, physical characteristics (like height & weight), proportion of time spent on screen, the current health problems faced by them. If they had any problems, they had to rate their pain on NPRS scale. It was also asked if they had taken any consultation or remedies to reduce the pain & discomfort.

The participants included in the study were college professors who are currently teaching by online means since

more than 3 months. Professors who already had any disorder not related to their work and with congenital deformities were excluded from the study.

**III . RESULTS**

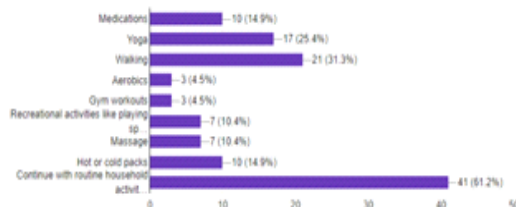
A Questionnaire was sent to college professors from Vadodara region. Out of 150 professors who responded, 134 fulfilled the inclusion criteria.

82 % of them were less than 40 years of age, off which, three-fourth of them were females. Most of them worked for six days a week. More than half of them travelled daily for more than 1 hour to and from workplace. About 61% of the professors worked in front of the screen for 4-8 hours a day. The table 1 shows the various problems faced by the professors in currently. Majority of them complained of more than one problem and that they did not face them before the commencement of online teaching.

**Table 1 : Health problems faced by college professors**

Health problems	% (Affected)
Headaches	35.8%
Mental tiredness	52.2%
General feeling of tiredness or body ache	43.3%
Neck & Upper Back pain	50.7%
Shoulder, Elbow, Hands or Finger pain	26.9%
Low Back pain	29.9%
Leg pain	19.4%
Eyestrain or tearing	52.2%
Sleep disturbances	26.9%
Others	1.5%
None	7.5%

Moreover, they preferred to continue with their routine household activities to overcome the problems. But however, a quarter also adopted low impact activities like yoga & walking. One-fifth of them chose high impact activities such as aerobics, gym workouts & sports. Only 34 manage their pain using massage, hot and cold packs.



**IV. DISCUSSION**

The principle finding of this study is that increased online teaching has impacted general health of the professors as majority of them did not complained of problems earlier. Neck and upper back pain are the most common regions of aches and pains. Ariens et al. stated that neck flexion posture and sitting posture while using a computer are related with neck pain.<sup>4</sup> Spending 95% of working time sitting and spending more than 70% of a working hour with the neck in 20° flexion increase the risk of neck pain. In addition, height of the screen and chair, distance of screen from the viewer could also affect the body posture. Improper size of desk and hand placement could increase the strain on upper limb musculature and hence lead to pain.<sup>5</sup>

One study found that when flexing the spine, to flatten the lumbar spine, improves the transport of metabolites in the intervertebral discs, reduces the stresses on the facet joints and gives the spine a high compressive strength. This suggests very positive effects of flexing the spine. However, this study did also report negative effects including increasing stress on the annulus fibrosis and increasing the hydrostatic pressure in the nucleus pulposus.<sup>6</sup> Further studies have found that sitting in a flexed position also reduces the activity of abdominal muscles which play a key role in stabilizing the back<sup>7</sup>. A recent study found that when a person sat for prolonged periods of time (for >4 hours), there was a significant reduction in the height of L4-5 intervertebral disc. Further studies found that sitting for more than half a workday and sitting in an “awkward posture” significantly increased the likelihood of LBP<sup>8</sup>. This shows that posture does impact back pain, but usually when maintained for a long period. A study found that people who sat in a flexed, more relaxed position for long periods of time did experience more back pain than those who did not<sup>9</sup>. It is also proven that in order to maintain an upright posture, computer users should keep muscle contractions in the body to a minimum level and this may result in lower back pain. Data shows most of them complain of cramping, dull aching pain and restlessness in lower extremities which could be probably due to prolonged sitting which may compress lower limb vessels at ischial tuberosity levels could be the reason for impaired circulation and venous congestion.

Studies show that humans blink half the usual amount of time when using computers. Blinking leaves a thin layer of tear film over the front of the eye, helping the eye to focus properly. Not blinking can cause images to look blurry and lead to dry eye. This may lead to computer-related eye fatigue. Patients may complain of blurred vision, difficulty focusing after leaving the computer, dry and irritated eyes, eyestrain and headache.<sup>10</sup>

Online teaching is quite different from traditional classroom teaching, where teachers have to spend 4-8 hours in front of screen which includes preparation as well. Initially, most of the teachers face trouble with accustoms for using new technology for online teaching. This has increased anxiety & stress levels in teachers to fulfill expectations for students for newly applied online teaching. Many of the teachers do not have a laptop and they are trying to conduct classes even with the use of mobile phones to follow the same academic work schedule which used to be followed in traditional classroom teaching. In the present study, nearly 50% participants showed mental tiredness, which they did not feel earlier. This may be due to a new drastic shift towards increased computer use.

Further, as seen in the results, most of the participants adopted various forms of physical activities rather than choosing medications. Due to the pandemic situation, participants choose to manage their pain and discomfort at home as they were afraid to visit a hospital due to fear of

Covid-19 cross-infection. Many of them ignored their pain & discomfort by continuing their routine household activities.

**V. CONCLUSION**

In summary, this situation of lockdown has led to major problems in teachers' lives, as evidenced by the pressure and health constraints that online educational methods have placed on them, many hours of work and difficulties due to the lack of physical contact or due to the obstacles created on combining personal life with family. Thus the study concluded that constant online teaching definitely altered their physical and mental health. Additionally, the professors have more inclination to 'Be active, be healthy & Be Happy' rather than resolving to medications. In fact, the new WHO 2020 Guidelines stress that any amount of physical activity is better than none, even when the recommended thresholds are not met (this is a very positive message for much of the population who currently fall well short of the desirable minimum). Through this study, it is evident that pandemic has taught us to be more physically active than before and that this is a more permanent. Given the importance that physical activity has in mental health it would be convenient to establish more coping strategies to encourage physical activity for similar situations in the future, in the case that health requirements force citizens to return to lockdown. A more broader and more specific research of the impact on physical and mental health is still needed in future.

**REFERENCES:**

1. Lokanath Mishraa Tushar GuptabAbha Shreeb (2020) Online teaching-learning in higher education during lockdown period of COVID-19 pandemic International Journal of Educational Research Open Volume 1, 2020, 100012
2. Gupta, N., Christiansen, C., Hallman, D., Korshøj, M., Carneiro, I. and Holtermann, A. (2015) Is Objectively Measured Sitting Time Associated with Low Back Pain? A Cross-Sectional Investigation in the NOMAD study. PLOS ONE 10(3):e0121159
3. Mohamed Sherif Sirajudeen1, Mohammed Alaidarous2, (2018) Work-related musculoskeletal disorders among faculty members of college of Applied Medical Sciences, Majmaah University, Saudi Arabia: A cross-sectional study Intj HealthSci (Qassim). 2018 Jul-Aug; 12(4): 18-25.
4. GA Ariens, Paulien Bongers (2001) Are neck flexion, neck rotation, and sitting at work risk factors for neck pain? Results of a prospective cohort study April 2001 Occupational and Environmental Medicine 58(3):200-
5. Julius Sim 1, Rosie J Lacey, Martyn Lewis (2006) The impact of workplace risk factors on the occurrence of neck and upper limb pain: a general population study BMC Public Health Sep 19; 6:234. doi: 10.1186/1471-2458-6-234.
6. Adams MA, Hutton WC. (1985) The effect of posture on the lumbar spine. The Journal of Bone and Joint Surgery. British Volume. Aug; 67(4):625-9.
7. Wong AY, Chan TP, Chau AW, Cheung HT, Kwan KC, Lam AK, Wong PY, De Carvalho D. Do different sitting postures affect spinal biomechanics of asymptomatic individuals?. Gait & posture. 2019 Jan 1; 67:230-5.
8. Lis, A., Black, K., Korn, H. and Nordin, M. (2006) Association between sitting and occupational LBP. European Spine Journal 16(2):283-298.
9. Womersley, L. and May, S. (2006) Sitting Posture of Subjects With Postural Backache. Journal of Manipulative and Physiological Therapeutics 29(3): 213-218.
10. KY Loh and SC Redd (2008) Understanding and Preventing Computer Vision Syndrome Malays Fam Physician. 2008; 3(3): 128-130.
11. WHO guidelines on physical activity and sedentary behavior 25 November 2020 Guideline