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Impact of work from home in covid-19: a survey on musculoskeletal problems in it professionals

Dr. Atiya A Shaikh (MPTh)¹, Dr. Sujit R Kadrekar (MBBS, DNB)²

¹Assistant Professor, DES Brijlal Jindal College of Physiotherapy, Fergusson College Campus, Shivaji Nagar, Pune, Maharashtra, India-4110004

²Director, Kadrekar's orthopedic and Physiotherapy Center, Pune

*Corresponding Author: Dr. Atiya A Shaikh (MPTh)

Email id: atiya_shaikh@yahoo.com/atiya.shaikh@gmail.com

ABSTRACT

Background and need of study

There has been abundant evidence about IT professionals suffering from different body aches and pains due to improper ergonomics. In current scenario of work from home due to Corona pandemic knowing their musculoskeletal disease status will help the health care professionals to devise a plan for prevention and treatment for this professional group.

Aim

To find common musculoskeletal problems faced by computer professionals while doing work from home in lockdown.

Method

Questions about current and previous musculoskeletal problems, working conditions and ways to tackle these problems were circulated using Google form to computer professionals doing work from home from duration of 15 April 2020 to 15 May 2020. Descriptive analysis was done to gather inferences.

Results

Percentage of shoulder pain/trapezius pain, elbow pain, wrist pain increased by double along with a significant increase in percentage of headache, eye strains and back pain in this period. 71% of the participants leaned in front to look properly at screen or preferred to lie down and work and 40% kept screen too close. 70% of the participants attributed it to faulty posture and increased screen time. 46% participants gave credit to the right posture, taking frequent breaks and exercises for reduction in their pain.

Conclusion

Musculoskeletal problems have increased in computer professionals in lockdown as compared to before. Prevalence of Neck/ shoulder pain, elbow pain, wrist pain and eye strain has increased in lockdown. Inappropriate postures in spite of having good works station, disturbance while working at home and increased working hours seems to be the reason for this increase in problems. This is dealt successfully by them thru frequent breaks and adapting correct postures.

Keywords: Computer professionals, Musculoskeletal problems, Work from home, CoVID-19 pandemic

INTRODUCTION

COVID 19 pandemic has become a concern for all health care professionals worldwide since December [1]. Many professionals have been forced to stay at home n work due to inability of cure and vaccine for the same. Countries have been under lockdown since mid-march 2020.Restrictions on offices and workplace opening and functioning are being followed since then. Many software professionals have been doing work from home since more than four months now. This scenario is expected to continue in near future too. Many software companies are thinking of continuing this trend in future to safe guard employees and society. Since this was a sudden lockdown, many professionals lacked the adequate working environment arrangements in the house for the same.

Health related problems are already rampant in computer professionals [2]. Such situation of work from home due to lock down may lead to unintended consequences such as reduced physical activity, increased sedentary behaviors, faulty postures, over working or less working thus, worsening of health conditions. Work from Home for a long period can increase postural repositioning errors as the home setup may not be ergonomically compatible. The cervical load increases from about 10 pounds in the neutral position to 60 pounds at 60degrees. Therefore, the excessive cervical load of a more flexed posture might cause considerable damage to the tissues subsequently predisposing to cranio cervical dysfunction and pain [3].

It's a well-known fact that, Improper posture and repeated use of particular body part can lead to many musculoskeletal problems and aches and pains due to damage to the muscle fibers, tone and posture [4-6].

Currently a wide literature is available on, epidemiology, clinical manifestations [7], identifying the genome of the virus 1 and challenges faced by the global health governance 5 and psychological health status. [8-10] No literature is currently available to comment on common problems faced by software professionals while doing work from home.

It was hypothesized that, IT professional's aches and pains would increase or they may have new problems emerging due to repeated use and misfit working environment. This study was planned with an objective to find out if this hypothesis holds true and also to shed some light on the other factors such as their ways to deal with it and their current working conditions.

MATERIALS AND METHODS

This was an online survey of total 23 questions, asked thru Google form from duration of 15 April 2020 to 15 May 2020.Any one working in software industry on a computer was considered as a potential participant. The study was announced through whatsapp groups and social media. The form consisted of information about the survey and consent form in English. Willing participants were asked to fill the form and forward it to their fellows. They were asked to fill the given online Google form with their consent .It included questions related to their working hours, posture, pains, methods used to alleviate pain etc. At the end they were given an option of free online consultation for the pains. An information posture about correct working posture and ergonomics was provided at the end of each questionnaire. 778 participants responded to the questionnaire. Obtained data was analyzed using MS Excel.

TABLES

Table 1- a) Demographic data

Age in years	Percentage of participants
20-25	31.3
26-30	25
31-35	12.5
36-40	12.5
41-45	6.3
45 above	12.5

b) Gender distribution

Gender	Percentage
Male	56.3
Female	43.7

c) Work place before lockdown

Workplace	Percentage
Office	80.4
Home	1.8
Mostly office	13.4
Mostly home	4.5

Table 2 - Change in the problem during lockdown

	Percentage
Increased	36.6
Decreased	8.9
Same	31.2
Fluctuating	23.2

Table 3- Pain intensity as per NRS

	Percentage
Mild(1-3)	56
Moderate(4-7)	8
Severe (8-10)	36

Table 4- Perception about the reason for worsening / improving the problems

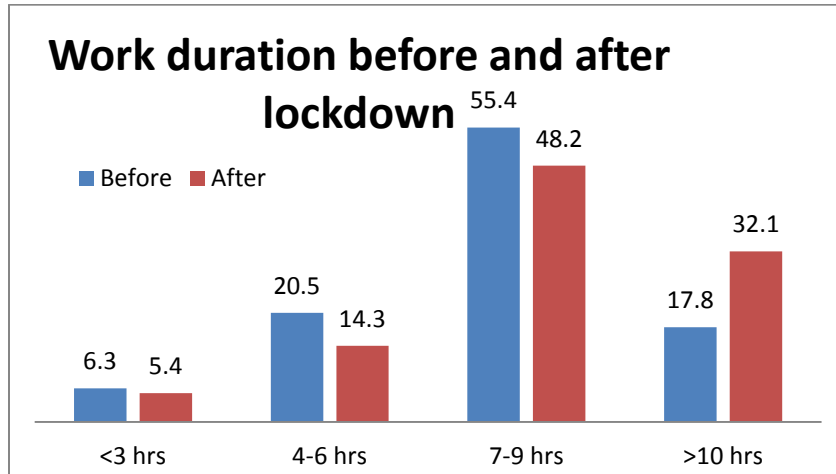
Worsening	Improving
Faulty posture-78.6	Frequent breaks and freedom to choose work timigs 46.6
Increased working hrs than before-35.7	Less travel-33.9
Improper Technical support-7.1	Able to spend more time in exercises and elaxation-42.9
Increased screen time due to some reasons-70	Ability to change work Intermittently-42.9
Additional home chores due to unavailability of help-24.9	

Table 5- Consultations with professionals to deal with ache and pains in lockdown

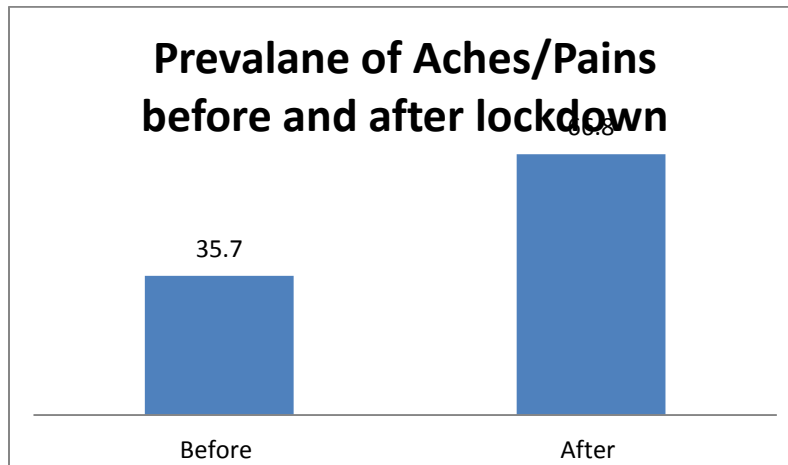
Consultant	Percentage
Orthopedic	4.6
Physiotherapist	12
General practitioner	4.6
Self-treatment	85.2

Table 6 - Would you like to learn more about how to deal with these problems thru exercises/physiotherapy?

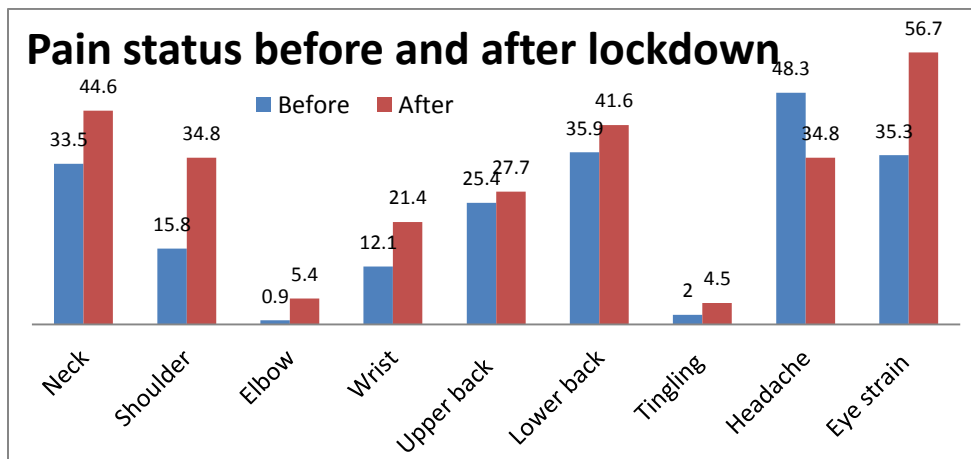
	Percentage
Yes	79.3
No	11.6
Not sure	9.1



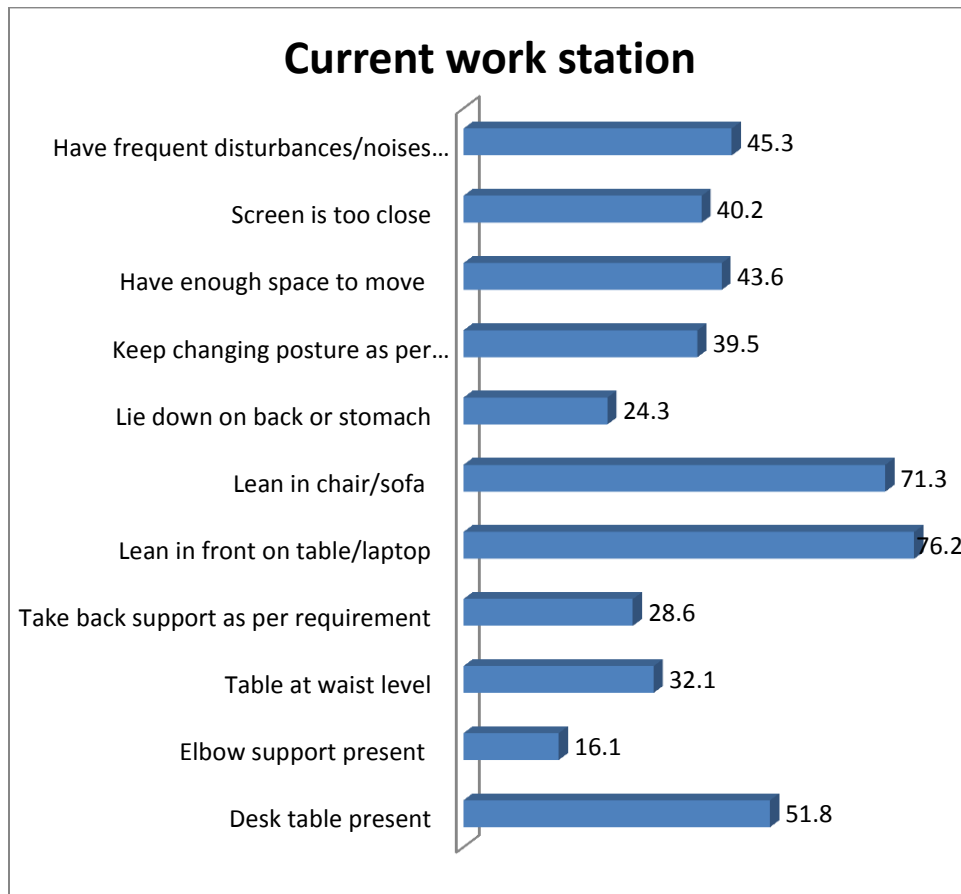
Graph 1- Working duration before and after lockdown



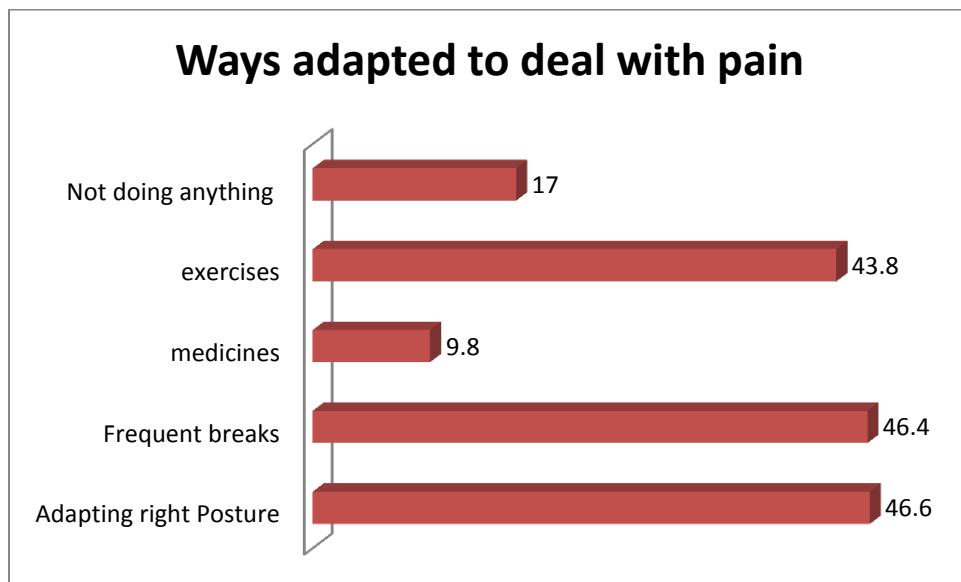
Graph 2- Aches/pains before and after Lockdown



Graph 3- Problem profile before and after



Graph 4- Current workstation and working posture



Graph 5- How are you dealing with these problems?

RESULTS AND DISCUSSION

This survey had more of young participants. Proportion on male and females participants was almost same so information variation due to gender

as a confounding factor can be ruled out 80% of the participants worked from office before lockdown hence it can be assured that, the change in maximum participant's aches and pains would be due to changed working environment.

It can be seen that, the duration for working for more than 10 hrs increased in lockdown (graph 1) thus, the change in ache pain status may be attributed to this increased work duration which is getting reflected in Graph 2 where it can be seen that, the problems almost doubled in lockdown period.

Although the amount of people whose pain worsened is same, there is an addition of equal percentage of new members in this category who developed pains in this duration (table 2). Most of the people had mild pain which is a good sign as this can be easily tackled with proper ergonomics and exercises (Table 3).

Many studies reported a dose response relationship between musculoskeletal problems and duration of computer use [11-14].

Hence, it becomes important to take a look at previous and current working hrs in these professionals. Increased work duration can be one of the reasons for adverse effect on their health leading to fatigue, muscle pains, eye strains etc. This is evident in Graph 3, where it's seen that, percentage of people having pains almost doubled after lockdown. 36% of the participant reported to have increase in their pain intensity. Pain intensity in more than half professionals is mild but 36% participant complaining of severe intensity is alarming.

IT professionals suffer from back pain, neck pain, eye strain and headache commonly [15-18]. When asked for problem profile, maximum participants complained about similar problems i.e. eye strain, neck and back pain. Percentage of shoulder pain/trapezius pain, elbow pain, wrist pain increased by double whereas, percentage of headache, eye strains and back pain too has increased in this period (Graph 4). Over all it can be noted that, the problems have increased in lockdown.

Work station and posture play an important role in maintaining proper ergonomics in professionals. This is evident in many previous studies where it's highlighted that, long work hrs, improper posture and static workload proportionately increase musculoskeletal load leading to MSD in IT professionals [19-21]. Hence, they were asked about their current work station and posture. Pictures were provided for better understanding and they were asked to tick on all the appropriate options. As seen in graph 4, 51% participants had

desk present for working. 28% of them took back support as and when required too. 39 % of them changed posture as per the need. But, its alarming to note that, in spite of having adequately appropriate working station, 71% of the participants leaned in front to look properly at screen or preferred to lie down and work and 40% kept screen too closes. Since 40 % of the participants had disturbances noises around may be they needed to do some alterations in their posture in order to concentrate at the work in hand. Hence, they got too close to screen or did the postural alterations.

When asked for the reason for worsening or improving the problem, 70% of the participants attributed it to faulty posture and increased screen time due to some or the other reason. Those who had improvement in their problem gave credit to frequent breaks, reduced travelling and flexibility to change work. These strategies have been proved to be effective in previous studies too. Where, it was noted that supplementary breaks reduce pains and enhance productivity in IT professionals [22, 23]. It contradicts the observations of few researchers [11, 12, 24]. Physical exercise or activities such as walking, running, fitness, and stretch exercise can help to relieve pain associated with excess computer use [18].

Thus, we know the remedies for reducing the problems here. As seen in table 8, 46% participants were about adapting the right posture, taking frequent breaks and exercises, which they did to reduce their problems. Very few (9.8%) took help of medicines to handle their pain. 85% of them being aware of right techniques and ergonomics did own treatment (graph 5). Their second choice for guidance regarding the treatment was physiotherapist (Table 5). This again shows their good level of awareness and faith. 79% showed interest in learning more about physiotherapy and exercises to deal these problems (Table 6).

This information can be used to provide appropriate posture correction, ergonomics and work station modification techniques in computer professionals. This paper also highlights the strategies used by the professionals to reduce their problems related to pains which can be adapted by other professionals to handle their pains successfully as many suffer with just mild degree of pain for which such techniques can be of real benefit.

CONCLUSION

Over all the aches and pains have increases in computer professionals in lockdown. Many professionals suffer from neck and shoulder pain. The prevalence of elbow pain and wrist pain and eye strain has increased in lockdown. The main reason for these issues seems to be inappropriate postures in spite of having adequate works stations, disturbance while working at home and increased working hours. This is dealt successfully by them thru frequent breaks and adapting correct postures.

Limitations and future scope

This was an online survey where care was taken to provide pictures and adequate explanation about responses and questions but, personal contact/one to one discussion was not provided hence some difference in understanding and its effect on certain responses cannot be ruled out. Detailed analysis of each factor and its effect on MSD during lockdown can be done in future thru an elaborated survey.

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Clinical implication

This study information can be used to create awareness about benefits of right work posture exercise and ergonomics to alleviate aches and pains in computer professionals. It also indicates a need for physiotherapist to expand their practice in Tele-rehabilitation and ergonomics in current scenario.

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DISCLOSURE

No potential conflicts of interest

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