

Workspace and postural challenges in Work from Home (WFH) Scenario

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Abstract

The word Corona virus or COVID-19 itself has become a pandemic across the globe. The resultant effect of this pandemic has pushed more than 60 % of the world indoors. The studies on the effect of COVID-19 across the world so far have concentrated mainly on factors related to the economic downturn, psychological trauma, stress of unemployment, and so on. Very few have looked at its effect on physical health and well-being during the lock-down. While the culture of 'Work From Home' (WFH) had always been related to software services/ information technology-related sectors, the current pandemic situation has forced more than 85% of other services and sectors to adopt this method. This novel concept of WFH for other sectors has opened up new challenges among households such as lack of a dedicated workspace or multiple members of the family working from home simultaneously. This study aimed to understand the most ignored aspect during this global pandemic i.e. physical well-being and postural challenges in a WFH scenario. An online survey was conducted through the use of Google forms. A total of 326 respondents participated across the world (majority being from India). The results showed that majority of the respondents were from the student community (40%) followed by IT/ITES field (16%). Interestingly, the percentage of female respondents were higher than male respondents (~62% vs 38%). A little less than 50% of the respondents answered that they were involved in video conferencing while around 28% were learning online. An interesting observation was that majority (~79%) of the respondents tended to use more than one gadget at any given time. Despite having a proper study table and chair, respondents complained of neck and back pain. While the participants were aware of proper working conditions, they were oblivious of the standard ergonomic working height ratio. Furthermore, participants said they were aware of workspace related disease conditions such as Musculoskeletal disorders (MSDs) but were unfortunately not aware of its implications. The major impact of this pandemic, from an ergonomic aspect, has been the realization for the need of a proper workspace at home. This, coupled with the understanding on importance of posture at workspace will potentially help people correct their posture and decrease MSDs or postural pain in the future.

Keywords: COVID-19; Work from home; Posture; MSD; Workspace.

1.Introduction:

The word Corona virus or COVID-19 itself has become a pandemic across the globe. This global pandemic has effectively forced more than 60% of the world indoors. The studies on the effect of COVID-19 across the world so far have concentrated mainly on factors related to the economic downturn, stress of unemployment, GDP growth, etc. Currently, an estimated 2.6 billion people are under lock-down of various forms¹. The reviews published by 'The Lancet' from February

2020 to April 2020 alone, have more than 24 studies documenting the psychological impact of quarantine. Many other health care and medical journals also concentrated mostly on the psychological stress. Very few have looked at its effect on physical health and well-being during the lock-down².

While the culture of ‘Work From Home’ (WFH) had always been related to software services/information technology related sector, the current pandemic situation has forced more than 85% of other services and sectors to adopt this method. This novel concept of WFH for other sectors has opened up new challenges among households such as lack of dedicated workspace or multiple members of the family working from home simultaneously.

In the current scenario, the available workspace at home is doubling up its functions as personal workplace as well as office place. This has become the biggest challenge for many households to maintain a work-life balance. In majority of the households, there are no demarcations or boundaries between work space/study area and family activities. Experts have described this as ‘role blurring’³. The term role blurring is explained in simple terms as the confusion that arises or the difficulty in distinguishing one’s role from work and family, when both settings are located at same space.

Though ‘role blurring’ was studied by many researchers on work-life balance and work-related occupational consequences on certain specific sectors and genders during various periods, its consequential effects are being observed now during the pandemic situation in many households. Researchers Chung and Van der Lippe⁴ in 2018, observed that women workers are expected to do more domestic work along with the office work at home than men. In India, being a rigid patriarchal society, this could lead to a drastic regressive effect on gender roles. In general, India and many other countries are not built to adapt work from home policy by companies, educational institutions, and the private and public sectors. Majority of Indian homes are not designed to suit the needs of work environment and many do not have a proper workstation or internet facilities. Some newspaper articles have highlighted the need for more laptops and purchase of internet dongles once the lock-down was announced as people were asked to work from home⁵.

A study by the Institute for Employment Studies (IES) found, with more than half of the respondents saying they were experiencing neck, shoulder or back pain. This study was the only major research that has been done so far on the aspect of physical well-being. The interim report with 500 respondents observed the new working life has increased their working hours with irregular hours². These studies have showed that homes are not designed for the WFH concept, especially in Indian homes with many common family activities performed at varied times. With these concepts in mind, this study was programmed to understand the working challenges faced by the people in a WFH situation which was a sudden turn of events due to a forced lock-down.

1.1. Aim of the study: To understand the work place and posture challenges faced by people in their home environment due to WFH situation

1.2. Objectives of the study:

- Understand the work-life pattern during WFH scenario.
- To understand the workspace and postural challenges faced due to the newly created WFH environment.

1.3. Hypothesis: Work from home is challenging in terms of working posture and leads to increased postural pain.

2. Methods and Materials:

The study was conducted by an online survey with the use of Google forms. The subject expertise on basic ergonomics and postures possessed by investigator, along with the current trend observed and heard through media, a well-designed questionnaire was framed. This questionnaire was then posted on various social media forums. The survey form was kept open for a period of five days from 4th May 2020 6.30 pm to 9th May 2020 6.30 am for respondents to fill up. A total of 326 people responded to this questionnaire, which was then analyzed to draw inferences.

3. Results and Discussion:

The participants response has been discussed as follows: demographic data, the newly adopted WFH activities, awareness of postures and concepts, the postural discomforts and remedial measures adopted and the impact of WFH in their daily life.

3.1. Demographic data:

The total number of respondents to fill this survey was 326 and it was skewed towards females (68% females versus 32% males). Around 60% of respondents were in the age group of less than 25 (Figure 1A), who are mainly from the student community (Figure 1B), while 29% and 27% were in 25-40 and 40-60 age group (Figure 1A), respectively. These age groups (25-40 and 40-60) corresponded to the IT/ITES, manufacturing, and teaching community (Figure 1B). The educational level of the respondents was found to be majorly Bachelor’s and Master’s degree (47% & 43%). (Figure 1C).

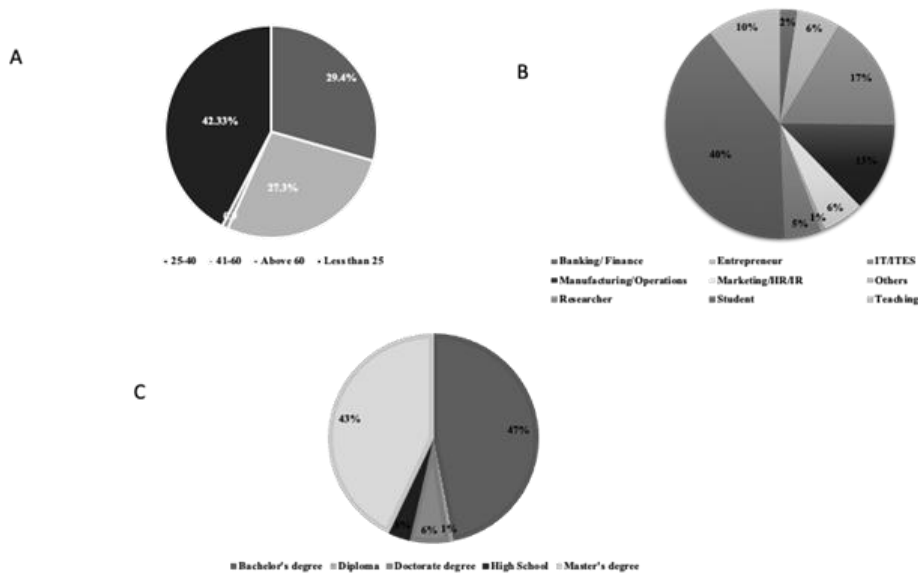
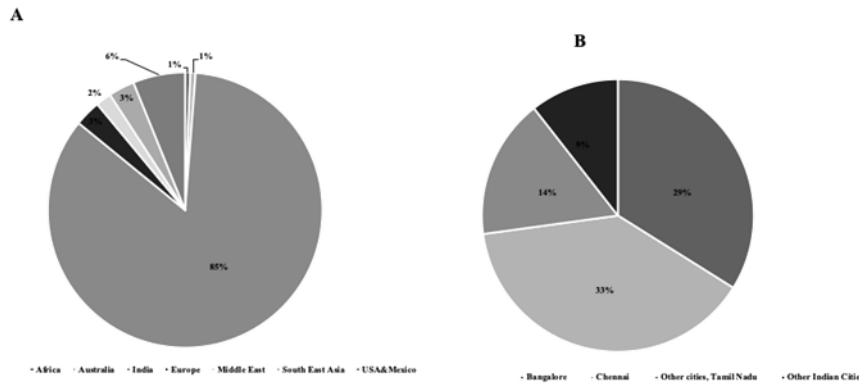


Figure 1: Demographics distribution of the respondents (N=326) with their age groups (A), occupation (B) and their education levels (C)

Figure 2: Location distribution of respondents (N=326).



A) The distribution across the globe B) The distribution of respondents among different cities in India.

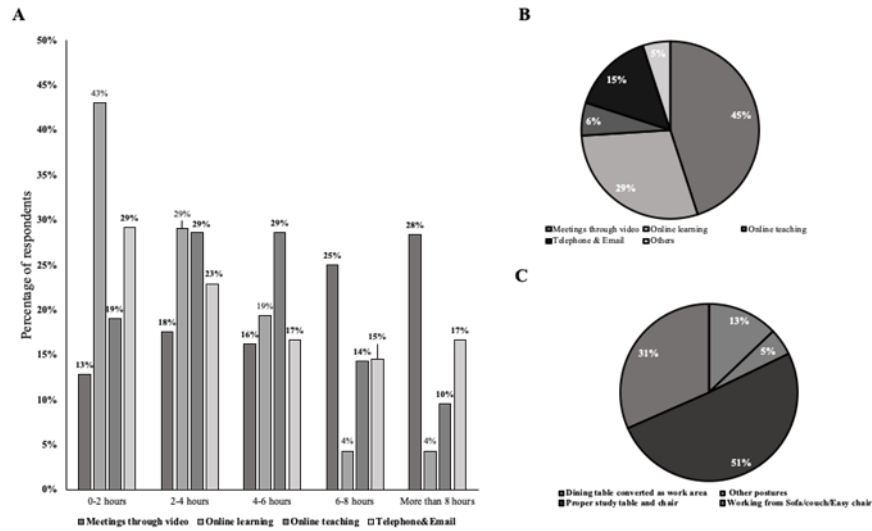
Though the survey was not aimed for any particular city or country, it was found that majority (85%) were from India (Figure 2A). In India, 34% were from Chennai followed by 29% from Bangalore, whereas 14% respondents were from tier II cities of Tamilnadu state, and the rest are from across the world.

3.2. Work Practices in Home Scenario:

The respondents were asked about their new forced working pattern at home and the various methods practiced by them. Interestingly, a major proportion of the people (45%) were having virtual meetings through various video conferencing applications (Figure 3B). Others were involved with online learning (29%), working through telephonic conversations and emails (15%) or online teaching (6%). When questioned about the time spent in each of these activities, the student community were seen spending 0-2 hours on online learning (43%) whereas people having virtual meetings through video calls were spending 6-8 hours (25%) and more than 8 hours (28%) (Figure 3A). Time spent for online teaching was between 2-4 hours (29%) and 4-6 hours (29%).

The majority of respondents were using more than one gadget at a time and around 45% of the participants were using headphones to avoid external distractions while working. Around 46% respondents said they used artificial lighting during daytime. Several reasons were cited by the respondents, not enough day light (57%), felt the need for extra light source to work (31%) while the rest (12%) preferred to get the feel of an office environment with the artificial light source. This highlighted and proved one of the objectives of this study that home spaces in general are not efficiently designed or do not suit the needs of an office-like workspace. About 70% of the people felt that their temporary workspace created at home was comfortable. One reason behind this could be that more than 50% had a proper study table and chair, while around 30% were sitting on sofa/couch/easy chair or converted their dining table to work table (13%) (Figure 3C).

Figure 3: Activities respondents were involved in during WFH (N=326).



A) Time spent on each activity described B) Different activities performed C) Workspace used for the various activities.

3.3. Awareness of Posture and Postural related issues:

The survey results showed that most (81%) of the people were aware of good postures and around 65% knew that the awkward postures could cause severe pain. Although people in general had heard the term ‘ideal working conditions’ and were aware of it (68%) they were not aware of the standard working height and seating ratios (52%). When asked to select their comfortable working postures, 51% were comfortable while sitting on a chair with back support while 15% percent preferred stretched legs with laptop on their laps.

Figure 4: Preferred positions to work from home (N=326)

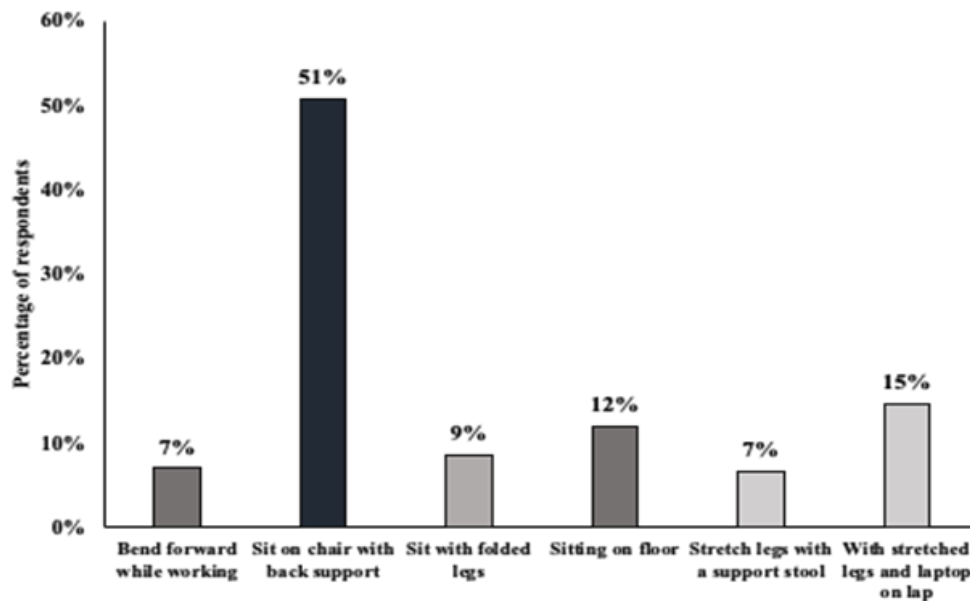
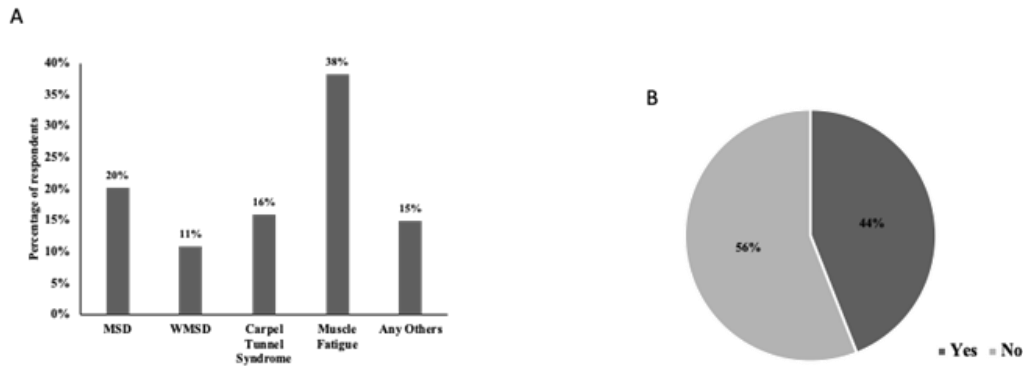


Figure 5: Awareness of posture related pains (N=326)



A) Awareness of the terminologies associated with posture pains B) Awareness of its impact on daily life.

Most of the respondents were aware of at least one of the terminologies used in relation to posture related pains like Musculoskeletal Disorders (MSD), Wrist Musculoskeletal Disorder (WMSD), Carpel tunnel syndrome, and Muscle fatigue (Figure 5A) but unfortunately, more than half of them (56%) were not aware of its consequences in day to day activities (Figure 5B).

The participants were then asked to select the correct postures while working to identify if they were aware of proper work postures.

Fifty one percent opted the standard operating postures (sitting with erect spine, resting foot on floor and sitting fully on the chair). However, 28%, which is a big number, had chosen some of the bad postures as correct ones (such as the drooped shoulder, slack back or sitting with raised shoulders). These postures actually cause severe postural pains and if this misconception is prolonged and practiced by those 28% respondents, the effect of MSD will be very severe in the long run.

3.4. Discomforts caused and remedial measures:

From the answers given by respondents and their analysis as above, it can clearly be understood that, though more than half of the participants were aware of the general terms related to posture, correct postural positions and were using proper study table and chair, they were not aware of the implications caused by their awkward sitting posture except complaining of back pain and stress. The usage of headphones was inevitable for almost fifty eight percent to avoid the external noises created at home set up. This question was followed up to ask if they felt ear pain due to continuous usage of headphones. Only thirty percent felt the pain while others cited, they were not experiencing any pain.

Since majority of respondents were using multiple gadgets (76%), when they were asked about eye stress/pain caused during or after their work, almost sixty percent of them opined having eye stress/pain. Seventy six percent told they took rest for a while before starting again, 18% ignored the pain and continued their work while a few others (<1%) used eye drops as remedial measure. The lack of a working environment design at home as compared to a professional office set up could be one of the reasons to be observe pain (~60%) (Figure 6A) caused in different body parts (Figure 6B).

Figure 6: Body pain symptoms of respondents. (N=326)

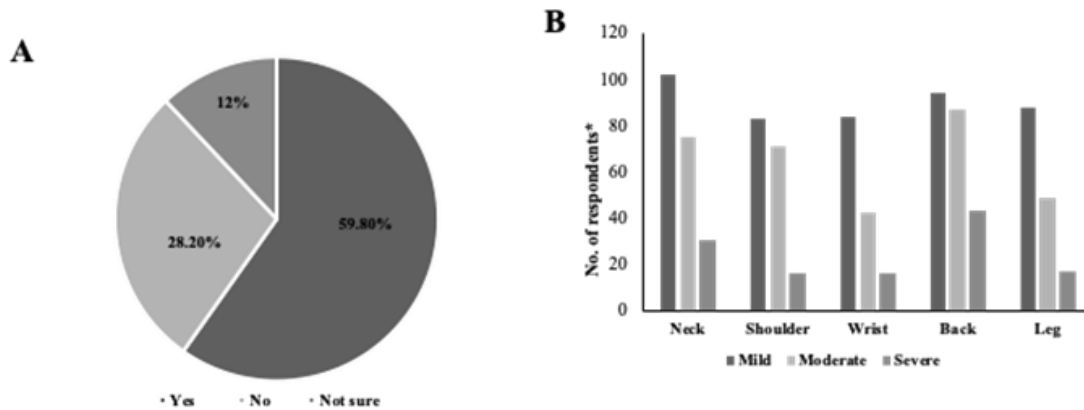


Figure 6: Majority (59.8%) of respondents felt body pain (A) but moderate pain was felt in the neck, shoulder and back while severe pain was felt mainly in the back (B). N=326 *only those respondents who answered yes in A answered for the different body parts in B.

From figure 6, it is clearly understood that most of the participants had body pain. It may be attributed to long hours of sitting, often ignoring or habitual adaptation of postures, not ergonomically designed chair and/or proper standard ratio of working heights. Since the observation of body pain was only for a period of 40 days during the confinement period, its effect has not transformed into high risk conditions, with majority of participants suffering only mild to moderate pain levels. But this could lead to severe conditions, if this WFH is continued for a longer period without any modification either to their home workspace and/or their body postures.

The precautions opted by the participants to avoid the pain during this WFH period was quite satisfactory as proved by their responses in the awareness of right posture (See results section 2.3). Thirty four percent took a walk every one or two hours whereas 26% took a break every hour. Impressively, 16% of participants answered that they always looked for a correct workspace or tried to create one if it was not available.

3.5. Impact of WFH on Daily routine:

Fifty percent of participants felt their daily routine had been affected in this new scenario of working from home (WFH) and 26% felt maybe it had an effect but were not very sure while the remaining felt no change. But almost every participant felt there was no standard working hours with no specified time gap between work and rest. Around 22% felt that it was very difficult to get locked in one room with no physical interaction among colleagues and office members.

4. Conclusion:

The word Corona virus or COVID-19 itself has become a pandemic across the globe. The resultant effect of this pandemic has pushed more than 60 % of the world indoors. The study found that majority of the homes are not designed to suit for the WFH and though the participants were aware of the work space and postural challenges, the pain level indicated that

very soon it can lead to the severity level if the existing home space is not redesigned for work from home- office environment.

Recommendations for WFH scenario

- ⇒ Adapt to standard work time schedule. Don't combine work and home related activities.
- ⇒ Redesign the work space to suit your body needs.
- ⇒ Use pillows, cushions for back rest.
- ⇒ Use the 20 -20-20 method, focus on 20 feet distance for 20 seconds every 20 minutes for relieving the eye stress.
- ⇒ Listen to your body.
- ⇒ Give compulsory break for few minutes every 2 hours.

COVID-19 is a disease and the current pandemic faced by people across the world is a strange experience for most people, but it has brought one thing common across the globe – adapting to a new life style which was not the '*normal norm of living*' till before this pandemic. WFH has become the world's most common terminology, right from a software technologist to a pre-school child to an educator. Since this has now resulted in more hours of working at home, creating, designing or altering the existing WFH to suit the needs of all family members may not be possible by every household. Hence, accepting the new norms of living, the participants are suggested to adapt the simple ergonomic standards at home to avoid a long-term injury to muscles for leading a better physical and mental living in future.

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Table 1: Remedial Measures adopted to overcome the postural pain (N=326)

Precaution adopted	%
After every hour ease myself and get back to work	26%
Always look for correct workspace or try to create one	16%
Consciously sit with erect back	14%
Make sure to walk for few minutes every one/two hours	34%
No rules, work until pain or uncomfortable situation arises	9%
Other	1%