Effects of Covid 19 on Health status and Quality of life among Software Professionals in a Home based work setting - A Questionnaire based Cross Sectional Study.

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Abstract

Introduction: Coronavirus disease (COVID-19) caused by Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first identified in December 2019 in Wuhan city, China. Following the outbreak of COVID-19 pandemic,to restrict the spread of virus, the Government has imposed strict measures with subsequent lockdowns as a result the home environment has become a workplace for many. Of all sectors the software domain is the most affected. Limited resource facility, work - engagement, work-life balance, family conflicts, stress management have been the challenges faced by these IT professionals working from home.

Aim: To analyze the impact of Covid 19 on health status and quality of life among software professionals in Covid pandemic through validated online questionnaires using google forms.

Materials and Methods: This cross sectional e-survey was conducted using validated questionnaires through google forms following approval of the Institutional Ethics Committee. The questionnaire consisted of 4 open ended and 21 close ended questions.Job stress, physical,mental well being, work life balance, work engagement was assessed.The google form was posted in social media channel groups of software professionals for a period of 2 weeks following which the data was collected.Statistical analysis was done using SPSS software version 22.0.

Results: A total of 154 software professionals participated in the study. Of which 80 were females and belonged to the 26-30 years age group. 83% software professionals preferred working in hybrid mode.

This study shows that working hours increased with increased work pressure in a home based work setting (61%). Both work life balance and work engagement was fair in a home based work setting (p-0.0001) Anxiety, depression and emotional problems affected work engagement and work life balance. Some professionals developed physical ailments such as hair fall, vision problems and back ache in a home based work set up.

Conclusion: The findings of this study suggests that emotional well being, sleep quality,decision latitude,limited resource facilities and job stress affect work engagement and work life balance. Hence undertaking appropriate measures proactively to enhance these factors under crisis conditions may mitigate the negative consequences of home-based work setting and improve the quality of life of software developers in the covid pandemic.

Keywords: Job stress, physical, mental well-being, work engagement and work life balance

INTRODUCTION

Coronavirus disease (COVID-19) caused by Severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2), was first identified in Wuhan city, China in December 2019.On January 30, 2020, COVID-19, was declared a public health emergency situation by the WHO. Consequently, it became a pandemic that affected millions of people all over the world. [1] There are 54.1 crore cases and 63.2 lakh Covid deaths worldwide. The first SARS-CoV-2 positive case in India was reported in the state of Kerala on January 30, 2020. Currently there are 83990 active cases and 524941 deaths in India.

Following the outbreak of COVID-19 pandemic the Government has imposed strict measures to restrict the spread of virus with subsequent lockdowns which has shut all the industries, factories, IT companies, schools, colleges, tourism, transportation between states, countries and this resulted in the huge loss to government as well the private sectors with fall in economy.

With the measures undertaken during the pandemic, the home environment has become a workplace for parents, a school for children, and a living space for the whole family at the same time. Of all sectors the software domain is most affected as these IT professionals are subjected to work for long hours with limited resource facility in a home based work setting and software development needs high level of concentration, focused attention, being systematic, persistent, creative and need to withstand stress. This poses a challenge especially when deadlines are demanding to finish the assigned projection time affecting work-life balance, physical and psychological well-being and productivity of software professionals.[2]

This forced work from home owing to Covid pandemic has aggravated occupational health problems like musculoskeletal disorders, vision problems, headache, psycho-social and sleep disorders. Work - engagement, work-life balance, limited resource facility, family conflicts, stress management have been the challenges faced by these IT professionals working from home.[4] Moreover, this pandemic will have long-lasting effects in the software industry, allowing their employees to work from home for an indefinite period. Therefore, it is crucial to analyze how a home based work setting affects software developers' well-being and productivity. This study will also provide insight on measures to be taken to mitigate the negative effects of work from home on mental being and productivity of software professionals.

Aim:

To analyze the impact of Covid 19 on health status and quality of life among software professionals in a Home based work setting during Covid pandemic.

Objectives:

- Primary Objective: To evaluate the effects of Covid 19 on physical and mental well-being of Software Professionals in a Home based work setting.
- Secondary Objective: To evaluate the quality of life of Software Professionals in a Home based work setting.

Inclusion criteria:

1. Software professionals of the IT sector working from home were included in the study.
2. Age 22-40 years of either sex.
3. Participants willing to participate in the study.

Exclusion Criteria:

1. Age > 45 years.
2. Other professions working from home.
3. Software professionals of higher rank such as Directors, Vice Presidents, Chief Executive Officers, Chief Information officers etc were excluded.
4. Software professionals with co-morbid illness.
5. Those with Psychiatric Illness on chronic treatment.

MATERIALS AND METHODS:

This cross sectional study was conducted to study the impact of Covid 19 pandemic on health status among software professionals working from home through validated online questionnaires using Google forms following approval of the Institutional Ethics Committee.The questionnaire was validated by experts of 4 different fields. Informed consent was obtained from the participants prior commencement of the study. To assess the impact of Covid 19 on health status and quality of life of software professionals working from home a questionnaire was developed with 4 open ended questions and 21 close ended questions. Job stress, physical, mental well-being, work life balance, work engagement were the domains assessed. The Google forms were posted in social media channel groups of software professionals for a period of 2 weeks following which the data was collected and statistically analyzed using SPSS software version 22.

Statistical Analysis:

The data was analyzed using SPSS version 22. Descriptive statistics was done for all data and were expressed as percentages. Categorical data was analyzed using Pearson's Chi square to find the correlation between the dependent variables. P value<0.05 was considered as significant.

RESULTS:

A total of 154 software professionals participated in the study. Of which 80 were females.[Fig/Table:2] Most of them belonged

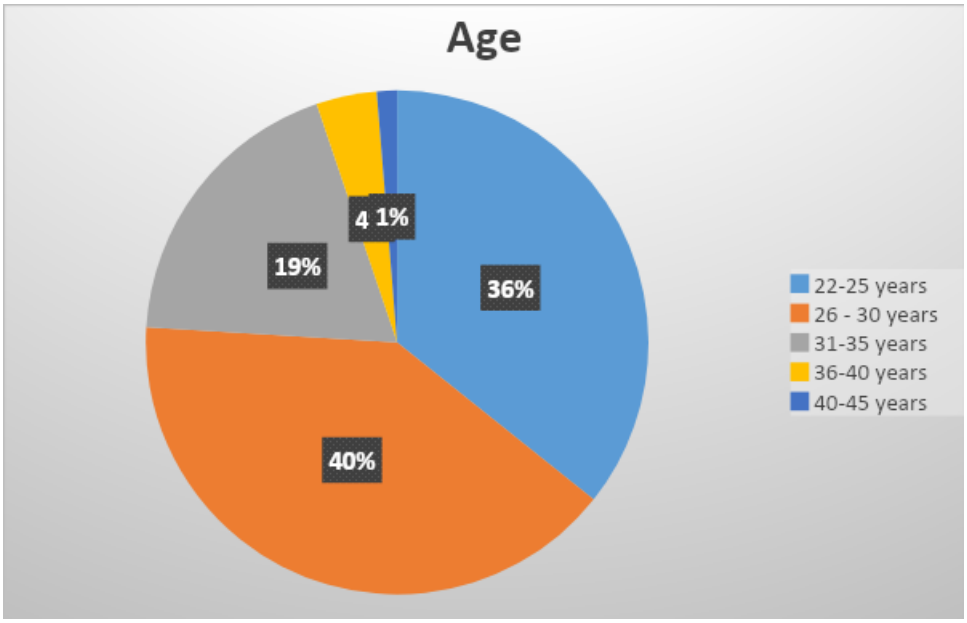
to the 26-30 years age group[Fig/Table:1]. 63% have been working in a home based setting for the past 2 years [Fig/Table:4]. High frequency of software professionals (83) preferred working in hybrid mode which involved working a few days at home and a few days at office in a week. [Fig/Table:3].

This study shows that 59% Software professionals worked for more hours (9-12 hours) a day in a home based work setting compared to working in an office set up (6-9 hours) [Fig/Table:6] with increased work pressure at home (61%) [Fig/Table:5] and 51% software professionals felt the need of quitting the job due to overall increased stress [Fig/Table:7]. They also felt the interaction with superiors was better working in an office set up (88%) but felt the ease of completing a task satisfactorily in a home based work setting (81%)[Fig/Table:8].

65% software professionals denied receiving any increment during the covid imposed forced work from home. 80% of them suffered changes in sleep pattern. Sleeping hours has increased in a home based work setting with p value 0.0001 [Fig/Table:9].

Time spent in physical fitness activities was less than one hour in both work from home and in the office set up [Fig/Table:10]. An opportunity for leisure activities was better in a home based work setting compared to office set up. Screen time including laptop (P value-0.0001), Television and mobile (P value -0.02) was comparatively increased in a home based work setting [Fig/Table:11,12]. Some professionals developed physical ailments of which most commonly encountered was hair fall, vision problems and back ache in a home based work set up. They also complained of increased weight gain in a home based work setting (73%).

Both work life balance and work engagement which was fair in 54 software professionals with P value 0.0001 [Fig/Table:13]. 61% software professionals had anxiety and depression while working in a home based setting which led to a fair work life balance (P value 0.0001) [Fig/Table:14].Emotional problems also interfered with work life balance and most of them could not fulfill their family responsibilities. (P value 0.0001). [Fig/Table:15].



Figure/Table 1: Age-wise distribution

Sex	Frequency	Percent
Female	80	51.9
Male	74	48.1
Total	154	100.0

Figure/Table 2: Sex wise Distribution

Working Preferences	Frequency	Percent	
	Hybrid mode	83	53.9
	Working from Home	51	33.1
	Working in office set up	20	13.0
	Total	154	100.0

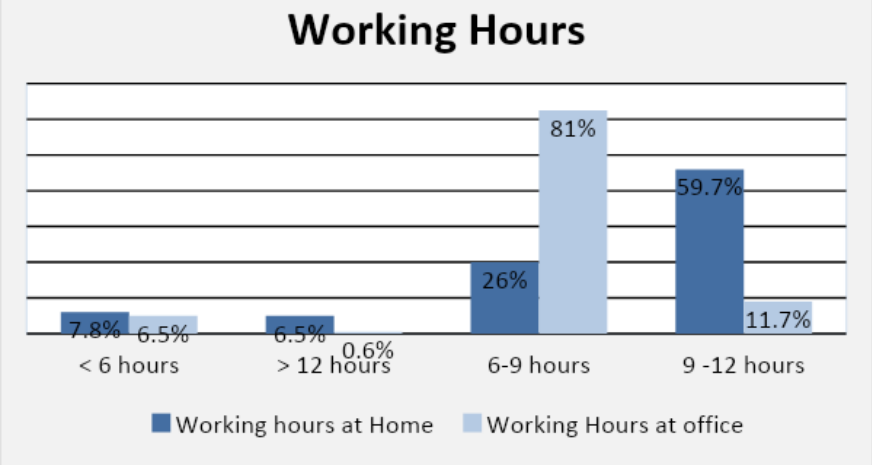
Figure/Table 3: Working Preferences

	Frequency	Percent
< 1 year	16	10.4
> 2 year	97	63.0
1-2 year	41	26.6
Total	154	100.0

Figure/Table 4: Duration of work from home

	Frequency	Percent
No	59	38.3
Yes	95	61.7
Total	154	100.0

Figure/Table 5: Increased Work pressure during work from home



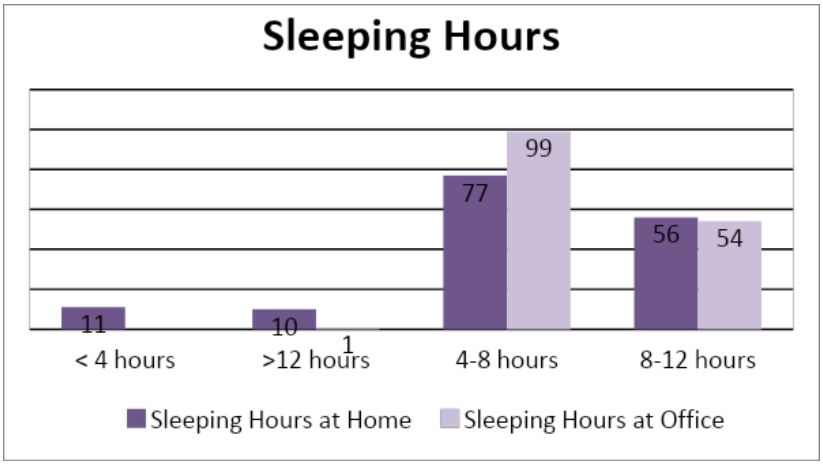
Figure/Table 6: Working hours during work from home * during work in office set up

	Frequency	Percent	Valid Percent	Cumulative Percent
No	74	48.1	48.1	48.1
Yes	80	51.9	51.9	100.0
Total	154	100.0	100.0	

Figure/Table 7: Feel like quitting job due to the stress of work from home

	Task assigned completed satisfactorily		Total
	Working from Home	Working in office set up	
Hybrid mode	41	42	83
Working from Home	38	13	51
Working in office set up	2	18	20
Total	81	73	154
Chi-square=24.718[a], p=0.0001			

Figure/Table 8: Task assigned completed satisfactorily



Figure/Table 9: Sleeping hours during work from home * during work in office set up

Physical Fitness at Home	Physical Fitness at Office		Total
	< 1 hours	1-2 hours	
< 1 hours	69	38	107
> 2 hours	4	2	6
1-2 hours	30	11	41
Chi-Square 1.010, p -0.604			

Figure/Table 10: Physical Fitness during work at Home * Physical Fitness during work at Office

Using Laptop at Home	Using Laptop at Office				Total
	< 4 hours	>12 hours	4-8 hours	8-12 hours	
< 4 hours	4	0	4	0	8
>12 hours	0	2	4	5	11
4-8 hours	1	1	24	14	40
8-12 hours	7	1	55	32	95
Pearson Chi-Square-36.150, p-.0001					

Figure/Table 11: Using Laptop at Home * Using Laptop at Office

		Using Mobile at Office			Total
		< 2 hours	> 4 hours	2-4 hours	
Using TV/Mobile at Home	< 4 hours	64	6	21	91
	>12 hours	4	0	2	6
	4-8 hours	24	3	17	44
	8-12 hours	3	3	7	13
Total		95	12	47	154
Pearson Chi-Square 14.153[a], p-.028					

Figure/Table 12:Screen time at Home * Office

Work-life balance	Work engagement				Total
	Excellent	Fair	Good	Poor	
Excellent	2	3	5	0	10
Fair	2	54	17	5	78
Good	4	12	23	3	42
Poor	0	12	5	7	24
Chi-Square -40.300[a], p-.0001					

Figure/Table 13:Work engagement * Work-life balance

Work-life balance	Anxious and depressed				Total
	All of the time	Most of the time	None of the time	Some of the time	
Excellent	0	0	5	5	10
Fair	3	18	2	55	78
Good	4	8	7	23	42
Poor	3	10	0	11	24
Total	10	36	14	94	154
Chi-Square 38.955[a], p-.0001					

Figure/Table 14: Anxiety and depression* Work-life balance

Work-life balance	Emotional problems interfering with your Work in a home based work setting				Total
	All of the time	Most of the time	None of the time	Some of the time	
Excellent	0	1	7	2	10
Fair	0	21	5	52	78
Good	2	12	6	22	42
Poor	1	12	2	9	24
Total	3	46	20	85	154
Chi-Square-42.463, p-.0001					

Figure/Table 15: Emotional problems interfering with Work in a home based work setting

DISCUSSION:

154 software professionals participated in this study of which 80 were females of 26-30 years of age. As shown in table 5 the overall stress was increased working from home due to inability to focus owing to interruptions from family members at home affecting work life balance which was similar to the study done by Denae Ford et al. (2021).

Working from home has also increased the working hours with reduced sleep hours leading to increased job stress and has increased the level of anxiety, depression and physical ailments affecting the well- being of these software professionals. It has also decreased the time spent in physical fitness and leisure activities similar to the study done by D.Ford et al. (2020)

While working remotely at home people tend to over work neglecting their daily routines, family responsibilities, no time for leisure activities and physical fitness leading to imbalance in work life balance and leading to poor quality of life and productivity at work. Hence by adopting new strategies like scheduling meetings, developing new daily routines, engaging in hobbies, spending time with family and friends we can improve the work environment and quality of life of software professionals working in a home set up as mentioned by Daniel Russo et al in his study. (2021)

Improving the quality of sleep which is an important predictor of well- being, reducing the workload by software companies

and by providing increments and promotions as mentioned in a similar study done by Paul Ralf et al,(2020) we can improve the productivity and emotional well- being of the software professionals working from home.

Adopting stress reduction measures like meditation, yoga, slow breathing exercises and social interactions can reduce stress levels as mentioned by Naik et al, (2018) we can improve the work performance and quality of life of these software professionals. Thus by improving these predictors of well- being and productivity by adopting appropriate measures we can remove the negative consequences of work from home and improve the quality of life of these software professionals in the near future.

CONCLUSION:

The findings of this study suggests that emotional well-being, physical ailments, sleep quality,, decision latitude, limited resource facilities, inadequate increments and job stress affect work engagement and work life balance substantially. Hence undertaking appropriate measures proactively to enhance these factors under crisis conditions may mitigate the negative consequences of home-based work setting on software developers and provide benefits in terms of mental well-being and work engagement so as to improve the quality of life of software professionals as similar pandemic periods are foreseen in the future and home has become an alternative work set up for software developers and many software organizations.

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Conflict of Interest: We have no conflicts of interest to disclose.

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