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Original Research Article

A cross-sectional study on stress and burnout among professionals belonging to information technology sector working from home in Tamilnadu, India

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ABSTRACT

Background: The post-COVID pandemic situation has brought drastic changes in workplace environments around the world with many organizations shifting to work from home (WFH) models.
Methods: An online survey was conducted with an invitation to professionals working from home to participate in the study. The questionnaire contained statements regarding their level of comfort in working from home and the statements from the Depression, Anxiety and Stress Scale (DASS-21) and the acceptance and action questionnaire (AAQ-II). A total of 150 responses were statistically analysed.
Results: 60.66% of the participants were experiencing various levels of stress, with 8.6% having severe levels of stress; while 60.66% had some level of anxiety, 4% of the participants had severe levels of anxiety. 32% of the respondents had some level of depression while 1.33% had levels indicative of severe depression. Only 40.66% of the respondents reported being comfortable working from home and 46% of the people reported they could not work without disturbances at home. The nature of job, age, gender and parental status all influenced the levels of stress, anxiety and depression in those who worked from home.
Conclusions: People who are working from home are stressed, anxious and have various levels of depression as clearly evidenced in this study.

Keywords: Anxiety and depression, Stress, Working from home

INTRODUCTION

The Covid-19 pandemic has been pivotal in bringing change in many sectors. This pandemic situation has made various organizational sectors shift to work from home (WFH) models to prevent the spread of infection amid directions from their respective governments. Many organizational sectors have already been shifting to remote working in a bid to bring about flexible work hours or to reduce inconsistencies across different time zones in work environments and WFH models have been proven to be productive when employees are adequately trained on the model with specific guidelines on methods of supervision, seeking help and guidance.[1,2]

The WFH has been studied in comparison to onsite work benefits[3,1,4] and results have varied with the type of job, marital status, parental status, teamwork, the need for human proximity, and ability to maintain work - life balance, serving as strong variables to the work from home model.

The Covid-19 pandemic has forcibly shifted many occupations, which were not traditionally considered

suitable for it, like the teaching profession, and people who did not prefer it due to personal reasons, to WFH. Researchers are quoting this situation as a golden opportunity to assess the feasibility of working from home.[5] There are only few studies that connect WFH to the mental health of the professionals and not many studies have been published on the mental health of professionals who are working from home. This study intends to find the mental health status of professionals who are working from home (WFH) in India. It hopes to find if people are comfortable working at home, and the effect of the imposed WFH atmosphere on their stress, anxiety and depression levels.

This study aimed to determine the mental health status of the information technology professionals working from home with respect to stress, anxiety and depression and to determine the impact of work from home culture on their work and family life.

METHODS

This cross-sectional study was conducted from April to June, 2023. Convenient sampling was used to select the sample. An online survey form was created in Google forms and widely circulated among friends and colleagues who were working from home and through social media with an invitation to participate in the survey and to recommend the survey to their colleagues.

Study was conducted after obtaining Institutional Ethical Committee approval of SRM School of Public Health and Nuances of the study was explained to the participants. Confidentiality was ensured throughout the study.

Inclusion criteria

IT sector professionals working from home for the past 6 months, aged between 21-60 years and residents of Tamil Nadu, India were included.

Exclusion criteria

Professionals in hybrid work models, pre-existing mental health conditions and non-consenting individuals were excluded.

A total of 150 responses were intended to be collected based on sample size calculation. The prevalence of nervousness among IT professionals was seen to be 49% according to a study conducted in Chennai. Based on this sample size was calculated using the formula $Z^2p(1-p)/d^2$, where Z was considered as 49% and allowable error was kept at 8. The responses were collected and some of them had to be excluded due to incomplete responses. The survey questionnaire had statements pertaining to basic family details and the type of profession they belonged to. It also contained statements regarding their perception of working from home with regard to their level of satisfaction, missing colleagues or their ability to create a WFH environment. It was followed by the statements from the Depression, Anxiety and Stress Scale (DASS - 21) and the acceptance and action questionnaire (AAQ - II)

Assessments

The Depression, Anxiety and Stress scale (DASS-21) is a self-report scale and it is a reliable and valid tool for assessing the levels of depression, stress and anxiety. Internal consistency for each of the subscales of the 21 - items of the questionnaire is typically high at Cronbach's α of 0.96 to 0.97 for DASS-Depression, 0.84 to 0.92 for DASS-Anxiety, and 0.90 to 0.95 for DASS-Stress. It has been validated for use in surveys for assessing levels of stress, anxiety and depression among sample populations. The acceptance and action questionnaire (AAQ-II) is used to measure the levels of experiential avoidance as conceptualized by acceptance and commitment therapy (ACT). It is a self-report measure and the scores indicate the level of a person's acceptance of the situation with higher scores indicating higher levels of experiential avoidance. Scores in AAQ have a direct influence on the levels of anxiety and depression. The AAQ-II had adequate internal consistency (Cronbach's alpha =0.78 - 0.87) and three- and twelve-month test - retest reliability (0.81 and. 79, respectively).

Each of the three DASS21 scales contains 7 items, divided into subscales with similar content. The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic nonspecific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items.

Data analysis

The data was analysed using SPSS - Statistical Package for Social Services software, (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 26, Armonk, NY: IBM Corp). The various details pertaining to their present living conditions of the professionals and their responses to statements regarding their jobs were analysed for normal distribution. Mean, standard deviation of the scores obtained in the DASS scale were calculated and the relationship of the scores to the various responses obtained from the survey was analysed using one-way analysis of variance (ANOVA) at 95% confidence level and $p<05$ indicating a significant relationship between the variables. Pearson's correlation was calculated to find the relationship between the scores of psychological flexibility and stress, anxiety and

depression, and their correlation to the different variables in the study.

RESULTS

Regarding work-from-home (WFH) experiences, 40.66% found it comfortable. While 61.33% managed to create a dedicated workplace at home. Disturbances while working were reported by 46%. Productivity was affected for 46.66% due to reduced colleague interactions, and 41.33% attributed decreased productivity to WFH. However, 69.33% were able to complete family responsibilities despite WFH. Family time remained unchanged for 52%. Sleep patterns were disrupted for 36%. Eating habits were affected for 48% (Table 1).

Table 1: Shows the frequency of variables.

Variables	Frequency	Percentage
Age distribution of the study population (years)		
2-30	73	48.66
31-40	59	39.33
41-50	17	11.33
51-60	1	0.66
Gender distribution of the study population		
Male	76	50.66
Female	74	49.33
Occupation distribution of the study population		
Software engineer	104	69.33
Senior software engineer	20	13.33
Lead/consultant	19	12.66
Manager	3	2
Senior manager	2	1.33
Principal architect	2	1.33
Information on whether the participant is married		
Married	92	61.33
Unmarried	58	38.66
History of whether the participant is living with family		
Yes	122	81.33
No	28	18.66
Information of whether living with children		
Yes	80	53.33
No	70	46.66
Information regarding their feeling of comfort working from home		
Comfortable working from home	61	40.66
Liked it a little	31	20.66
Not comfortable	58	38.66
Information on whether the study participants were able to create a workplace at home		
Ability to create a workplace at home	92	61.33
Ability to create a partial workplace	35	23.33
Not able to create a workplace at home	23	15.33
Information on whether the participants were able to work without disturbance at home		
Could not work without disturbance	69	46
Able to work without disturbance	40	26.66
Able to manage with mild disturbance	41	27.33
Information on whether the participants productivity is decreased because of lack of interaction with colleagues		
Decreased productivity	70	46.66
Somewhat reduced productivity	35	23.33
Productivity not reduced	45	30
Information on the feeling whether the decreased productivity is due to working from home (WFH)		
Decreased productivity	62	41.33
Somewhat reduced productivity	39	26
Productivity not reduced	49	32.66

Continued.

Variables	Frequency	Percentage
Information on whether the participants are able to complete their family responsibilities due to WFH		
Is able to complete them	104	69.33
Slightly reduced	25	16.66
Unable to complete	21	14
Reduction in family time due to WFH		
No change	78	52
Small change	23	15.33
Affected	49	32.66
Changes in sleep due to work from home culture		
Not getting adequate sleep	54	36
No change	56	37.33
Slight change	40	26.66
Changes in eating habits due to work from home culture		
Definite change in eating habits	72	48
No change	38	25.33
Slight change	40	26.66

Table 2: Incidence of stress, anxiety and depression among the study population.

Levels of stress, anxiety and depression	No. of participants	Percentage
Incidence of stress among study population		
Mild stress	46	30.66
Moderate stress	32	21.33
Severe stress	13	8.66
No stress	59	39.33
Incidence of anxiety among study population		
Mild anxiety	66	44
Moderate anxiety	19	12.66
Severe anxiety	6	4
No anxiety	59	39.33
Incidence of depression among study population		
Mild depression	33	22
Moderate depression	13	8.66
Severe depression	2	1.33
No depression	102	68

Table 3: Correlation between age of the participants and scores of stress, anxiety and depression in DASS 21.

Correlation between age and scores of stress, anxiety and depression	R value	P value
Age Vs Stress	0.8502	<0.0001*
Age Vs Anxiety	0.7262	<0.0001*
Age Vs Depression	0.2596	0.0013*

*Statistically significant

Regarding stress levels, 30.66% experienced mild stress, 21.33% had moderate stress, and 8.66% reported severe stress. Anxiety was prevalent among the participants, with 44% experiencing mild anxiety, 12.66% reporting moderate anxiety, and 4% suffering from severe anxiety. 22% experienced mild depression, 8.66% reporting moderate depression, and 1.33% suffering from severe depression (Table 2).

There is a positive correlation between age and scores of stress, anxiety and depression. This means that higher the age, more the stress, anxiety and depression (Table 3).

Even though the scores of stress, anxiety and depression were higher in females when compared to males, the difference was not found to be statistically significant (Table 4).

The stress scores were much higher in senior managers, principal architect and lead/consultants. This suggests that the stress score was much higher in those at higher cadres. Similar results were seen with anxiety scores also. These score differences were statistically significant. Even though depression scores were different in each

cadre, this difference was not statistically significant (Table 5).

Table 4: Relationship between gender and scores of stresses, anxiety and depression.

Gender distribution	Stress score	Anxiety score	Depression score
Male	14.89±6.64	7.65±2.52	7.97±3.26
Female	15.47±7.79	8.13±3.53	8.86±4.69
T value	0.4912	0.9605	1.3525
P value	0.6240	0.3384	0.1783

Table 5: Relationship between occupational profile and scores of stresses, anxiety and depression.

Occupation distribution	Stress score	Anxiety score	Depression score
Software engineer	12.46±5.76	6.97±2.42	8±3.13
Senior software engineer	17.65±4.48	9.15±2.62	9.7±4.62
Lead/ consultant	22.63±6.53	9.78±3.20	8.94±5.79
Manager	28±0	14.66±5.77	6.66±2.30
Senior manage	29±2.82	12.5±4.94	15±15.55
Principal architect	28±4.24	10.5±2.12	7.5±2.12
F value	19.7541	10.8351	1.9470
P value	<0.0001*	<0.0001*	0.0901

*Statistically significant

The stress scores, anxiety scores and depression scores were much higher in those who were parents to a child than those without children (Table 6).

Table 6: Relationship between parental status and scores of stresses, anxiety and depression.

Parental status	Stress score	Anxiety score	Depression score
Parent	19.62±5.91	9.47±2.91	9.38±4.56
Not a parent	10.1±4.81	6.08±2.08	7.3±3.00
T value	10.7223	8.1013	3.2496
P value	<0.0001*	<0.0001*	0.0014*

*Statistically significant

DISCUSSION

The results indicate that 60.66% of the participants have some level of stress, with 8.66% of the participants having severe stress, 60.66% of the participants having some level of anxiety, of which 4% of the participants were suffering from severe anxiety, and 32% of them having some level of depression, with 1.33% of them having severe depression. This correlates with a study among Microsoft employees in 8 countries that reported that over 40% of Indians are stressed due to working from home and a global study indicating that levels of anxiety and depression have risen to 52% during the pandemic.[6,7]

Not being able to create a workplace at home, not being able to interact with co-workers, feeling of decreased productivity due to WFH, increased workload, inability to balance work and home, all contributes to increased levels of stress, anxiety, and depression as clearly indicated in this study.

Having children and tending to their educational, emotional, and physical needs while balancing working from home during the lockdown, negatively impacts the levels of anxiety in parents as clearly evidenced in this study.

IT professionals who are more used to WFH have significantly lower percentages of stress and anxiety, but a higher percentage of female participants in IT have higher levels of stress, anxiety, and depression than the males working in IT. This could be explained by the fact that women tend to share the bulk of home responsibilities including tending to their children, and having them around during the lockdown could explain the increased levels of stress, anxiety, and depression when compared to men in the IT profession.

While comparing the age wise distribution of stress, anxiety, and depression scores, it was noted that participants over 60 years of age were more distressed as evidenced by the highest percentage of them having stress, anxiety, and depression, but they constitute only small proportion of the sample and hence these findings cannot be generalized to the general population.

A higher percentage of people in late adulthood in the age group of 51-60 years have scores indicative of low stress, anxiety, and depression. People in this age group would have children who are settled, and working safely would actually provide them with protection against contracting the virus, while still maintaining their economic status, thus accounting for fewer people reporting stress, anxiety or depression.

Whereas a higher percentage of people in the age group of 31-40 years who might have young children at home and are establishing themselves in their professions have higher levels of stress, anxiety, and depression. Experiential avoidance is a process by which humans tend to avoid or escape personal experiences that are stressful.

Avoiding a situation or experience has been proven to increase stress and anxiety as theorized by acceptance and commitment therapy. Studies have shown that people who have increased scores in experiential avoidance are more prone to develop stress, anxiety, and depression as also clearly evidenced in this study.[8,9] These results are similar to the study involving psychological inflexibility

and distress in the time of Covid done in the United States.[10] Feeling stressful and anxious in creating a sense of normalcy during pandemic situation is normal, but people who have been able to take a positive perspective have been able to adapt and adjust as clearly indicated by scores in AAQ II having a direct influence on levels of stress, anxiety, and depression. This clearly indicates the importance of creating a work-life balance at home during this pandemic. It is understandable that a large percentage of people are stressed while working from home, but the financial security that comes from working from home is a boon and people need to improvise to the new normal that is essential during these tough times. This is evident in newspaper reports that are emerging around the world including India of the rising support to work from home models.[11-13]

It should also be noted that not all professions are suited for the WFH model and for even those who are used to WFH, people still like human proximity as evidenced in this survey indicated by a large percentage of people who reported missing colleagues and feeling that their productivity being reduced while WFH, and by surveys on the benefits of an interpersonal relationships in increasing productivity.[14,15]

This study has few limitations. This study focused on the levels of stress, anxiety and depression of professionals who were working from home, based solely on statements limited to WFH, but there could be other confounding variables such as interpersonal conflicts, presence of pre-existing psychiatric illness or even the absence of domestic help which could have affected the mental health of these professionals.

The authors wish to acknowledge that several factors such as, personality characteristics, openness to WFH model, previous exposure to WFH model, internet connectivity issues, support from spouse or support of extended family members for working from home and caring for children were not dealt with in this survey.

The productivity of the participants, as measured by the employers were not measured and these could form the scope for further studies.

Sizable sample was not obtained from professionals in IT professions. So, the results could not be generalized to all professionals who are working from home.

CONCLUSION

This study shows that professionals working from home are in distress and suffer from various levels of stress, anxiety, or depression. People working from home miss working with colleagues and feel that their productivity is reduced due to working from home. The nature of job, age, gender and parental status all influenced the levels of stress, anxiety and depression in those who worked from home.

Recommendations

The benefits of WFH are immense in the context of the pandemic situation, but these professionals need to be supported by their organizations by regular interaction with its staff to identify concerns regarding working from home, to address any psychological issues that may occur, so that adequate and timely help might be provided to them.

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