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Prevalence Of Stress And Depression Among Work From Home Professionals During Covid-19 Lockdown

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ABSTRACT

The software industry is a capital-intensive industry for humans. A study was conducted on the prevalence of stress and depression among work from home professionals. The objectives were 1) To evaluate the prevalence of stress among work from home professionals using a perceived stress scale.2) To analyze the prevalence of depression in work from home professionals using the Hamilton depression rating scale. Data was Collected from 377 IT professionals of either genders. Almost 33.42% of the study participants were scored positive results in stress and in that 33.42% of study participants, 10% were severely depressed.

Keywords: Mental health, Work from Home, IT professionals, stress, depression. perceived stress scale, Hamilton depression rating scale

INTRODUCTION

STRESS

The term stress refers to any type of change that causes emotional experience with associated behavioral change, biochemical change, physical change, or psychological change that are related to perceived acute or chronic challenges. Stress can be stimulated by various factors, which is called a stressor. Everyone experiences stress to some degree. The stressful situation might be varying from one person to another person. A stressful situation may be depending upon the different kinds of appraisal which we give to a life event and also our way to deal with the situation. Apart from psychological effects, stress also has various bodily consequences such as rapid heartbeats, etc. Coping skills, temperament and available social support also play an important role in a stressful situation. If the person has good coping skills and high social support, then it will reduce the occurrence of maladaptive responses to stress [1].

Stress has become the most common phenomenon and unavoidable thing in our daily life. Stress also can be defined as an adverse reaction that people experience when external demands exceed their internal capabilities [2]. Stress can be due to many reasons like modernization, industrial growth, expanding population, unemployment, urbanization, and automation, etc. The major areas where people experience stress are in their organizations because of excessive workloads, low salaries, long working hours, etc. The public sector is government-owned and operated and these organization majorly focuses on the maintenance and also control of our country's social and economic condition as well as on the administration of essential services. Whereas private sector organizations focus on community service groups that operate independently and also are considered to be profit-making enterprises [3].

Stress can be generally divided into two types. 1) Acute stress, 2) Chronic stress.

Complications of Stress: Chronic stress can cause problems in the following body systems: The cardiovascular system, digestive system, Immune system, and reproductive system. Long-term stress may increase the risk of certain conditions, including heart disease, high blood pressure, diabetes, depression, and anxiety. The American Psychological Association suggests that chronic stress can also impact the endocrine and respiratory systems. Forex, some people may experience dyspnoea and rapid breathing while on stressful periods. People with COPD, asthma and other respiratory conditions may experience a worsening of their symptoms. Those with chronic stress may have increased production of cortisol which is helpful for the "fight-or-flight" mechanism, which can lead to chronic fatigue and obesity, and among other conditions.

WHO data about stress: As per the WHO report, depression is a common illness worldwide, with more than 264 million people affected. Depression is differing from normal mood fluctuations and short-lived emotional responses in daily life. Especially when peoples with moderate or severe intensity, depression become a serious health condition. It can cause the affected person to suffer greatly and function poorly at school, at work, and with friends and family. At the worsening stage, depression can lead to suicide. Almost 8,00,000 people are died due to suicide every year. Although there are known, effective treatments available for mental disorders, between 76% and 85% of people in lower-income countries are not receiving treatment for their mental problems. Barriers to effective care include a lack of trained healthcare providers and resources and social stigma associated with mental disorders [4]

Depression

Depression is a serious condition that affects negatively how a person feeling, thinking, and behaves. In contrast to normal sadness, Depression is persevering, often butt into with a person's ability to experience or anticipate pleasure, and significantly butt into with functioning in daily life. Untreated, symptoms can last for months, or years; and if inadequately treated, depression can lead to notable impairment, other health issues, and in some rare cases leads to suicide. In simple terms which is defined as a mood disorder. It may be described as feelings of sadness, loss, or anger that interfere with a person's day-to-day daily activities. People experiencing depression in various ways, which may interfere with their daily work, resulting in lowering productivity and lost time. It can also influence relationships and some chronic health issues.

Types of Depression: Depression can be divided into different categories based on the severity of symptoms. Some people experience mild and temporary episodes, but some people are experiencing severe and ongoing depressive episodes [5-9]. There are two different types: 1) Major depressive disorder and 2) Persistent depressive disorder.

Complications of Depression:

Pain-related to depression- Clinical depression causes many physical symptoms, including physical pain. The mind controls the body, and a person's emotions can have an impact on the body's major functions. Pain associated with depression can range from unexplained headaches to neck pain to abdominal pain.

Depression complicates sex- Both types of depression and some depression medications can cause sexual problems. Depression tends to reduce the sex drive and affect personal relationships. Some

depression medications having the risk to reduce libido or sexual functioning. Studies have shown that some antidepressant medications can harm your sexual desire. Ingredients in some antidepressants interfere with the chemicals that are responsible for sexual response.

Sleep complications associated with depression- Insomnia (trouble falling asleep or staying asleep) is a major symptom of depression. The inability to get a good sleep at night time can have serious consequences on the human body. This is especially true if someone already has other depression symptoms such as fatigue and low energy. Some people with clinical depression also find that they oversleep (a condition called hypersomnia) and may still be tired the next day

How stress links with depression?

Depression has many possible causes, such as brain chemicals, genetics, and our life situation. Chronic stressful life situations can increase the risk of developing depression if we aren't coping with the stress well. There's also increasing evidence of links among poor coping, physical illness, and stress.

Sustained or chronic stress, which leads to elevated hormones such as cortisol, the "stress hormone" and reduced serotonin and other neurotransmitters including dopamine, which has been linked to depression

Informational technology (IT) Professional's stress and depression [10**]:**

Information Technology (IT) era is an opportunity has got to explore and blossom. It humbly started with advancements in hardware and then rapid changes in technology and software. In the last 30 years, it has taken a leapfrog jump and has changed human being's life in all kinds of aspects. It has affected every profession and individual's daily life also. Today, we cannot imagine our life without IT instruments with the rapid advancement, IT has generated a tremendous employability environment also. Stress is more in the software profession because of their nature of work, target, achievements, night shift, over workload. India is a forerunner in the IT industry with lakhs involved as IT professionals. There is an urgent need to understand the dynamics of IT professional stress and its associated psychiatric morbidities to prevent it from assuming epidemic proportions. There is no study available in India which screened and associated professional stress, the risk for developing depression among IT Professionals [11].

As we know all, the pandemic crisis of the coronavirus is continuing and most of the software-based professionals are working from home and finding it difficult to balance their work-life. This imbalance between work and life paves way for stress in addition to work stress and progresses to depression. So, in the current study, we would like to evaluate the prevalence of stress and depression among work-from-home professionals and also to provide structured education on stress and depression.

Materials and Methods:

Study Design: Prospective Observational study.

Study Duration: Eight months.

Population-Work from home professionals visiting Outpatient department, Annai velankanni hospital.

SAMPLE SIZE:

The following formula is used to calculate the size of the required sample {n = (Z) 2 X p (1 – p) /d^2}

Where: n= sample size, Z= Level of confidence according to the standard normal distribution (for a level of confidence of 95%, z=1.96, for a level of confidence of 99%, z=2.575) here we use the standard variant Z=1.96, p = Estimated proportion of the population that presents the characteristic 43%. Hence, p=0.43, d = absolute error or precision = 0.05, The calculated sample size was 376.63. So, the final sample size=is **377.**

Data Collection Instruments:

There are two scales are used to conduct this study.

- Perceived stress scale
- Hamilton depression rating scale

Perceived stress scale [12]:

Perceived stress scale is a standard tool that has been widely validated and found to be reliable data of stress. Perceived stress scale is used to assess the stress level of participants, Copyright's permission was obtained from the authorized publication and the same scale was used to analyze the stress level among IT professionals during the work from home.

Scoring and Interpretation:

The Perceived stress scale consists of 10 items, each assessing the severity of a stress problem over the past one month using a 4-point scale (from 0 to 4).

Perceived stress scale scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 and 4 = 0) to the four positively stated items (items 4, 5, 7, and 8) and then summing across all scale items. A short 4 item scale can be made from questions 2, 4, 5, and 10 of the Perceived stress scale 10 items scale.

The score was used to generate a total score ranging from 0 to 40.

Table-1- Perceived stress scale's scoring and interpretation	
Stress Level	**Score**
Mild	0-10
Moderate	11-20
Severe	21-30
Very severe	31-40

Hamilton depression rating scale [13**]:**

The main purpose of the Hamilton depression rating scale is to assess the severity of and change in depressive symptoms. The Hamilton depression rating scale is used to assess the depression level

of participants, and the same scale is used to assess the depression level stressed participants among IT professionals during the work from home**.**

Scoring:

Table-2- Hamilton depression rating scale's scoring and interpretation	
Depression Level	**Score**
Normal	0 – 7
Mild Depression	8-13
Moderate Depression	14-18
Severe Depression	19-22
Very Severe Depression	> 23

Patient selection:

Inclusion criteria:

1. Out-patients of the age of 21 to <60 years
2. Out-Patients working from home
3. Participants with a minimum of one year of experience

Exclusion criteria:

1. Participants with a known case of depression or other mental illness
2. Females who are pregnant or have delivered a baby in the last six months

Complete study procedure:

Data collection was started after obtaining ethical clearance from IEC, VISTAS. This study was planned to assess the stress and depression associated with work from home professionals. The written informed consent form was obtained for all 377 participants before enrolling in the study. All 377 participants were inquired to reveal their work nature, whether they work from home or work from the office. Demographic data like patient's name, age, body weight, height, gender, marital history, social history, medical history, medication history, OTC drugs, diet history, smoking history, alcohol consumption history, lifestyle will be documented using the structured data entry form.

Those participants who are doing work from home during this pandemic were administered with a perceived stress scale to analyze the level of stress due to their work from home nature. After the response of the perceived stress scale received, the score was calculated and interpreted the level of stress like mild, moderate, severe, and very severe. Perceived stress scale results are severe and very severe, we were administered the stressed participants into the Hamilton depression rating scale and mild and moderate scored participants were administered into the stress and depression awareness leaflets to educate the awareness and complication and stress management. After the response of the Hamilton depression rating scale received, the score was calculated and interpreted the level of depression-like mild, moderate, severe, and very severe. Based on the Hamilton depression scale's score results the participants were severe, and very severe depressive, we were provided counseling and suggested to visit the psychiatrist, and the results shown mild and moderate were provided the stress and depression awareness leaflets to educate the awareness and complication and stress management and suggested to visit the psychiatrist when

they feel suicidal thoughts. Data were collected and entered in a Microsoft Excel spreadsheet and used for further statistical analysis.

Statistical analysis:

Data entered in MS Excel and analyzed using descriptive statistics and logistic regression. All categorical variables, including respondents of socio-demographic details, depression of participants will be expressed as percentages and frequencies.

Results:

A total of 377 participants were participated in the study. Out of them 31.83% were males and 68.17% were females. Majority of participants are female.

Based on age: 24.4% of the study sample were between 21 years and 25 years, 33.16% were between 26 years and 30 years, 14.32% were between 31 years and 35 years, 14.58% were between 36 years and 40 years, and only 13.54% above 41 years.

Table-3- Age distribution

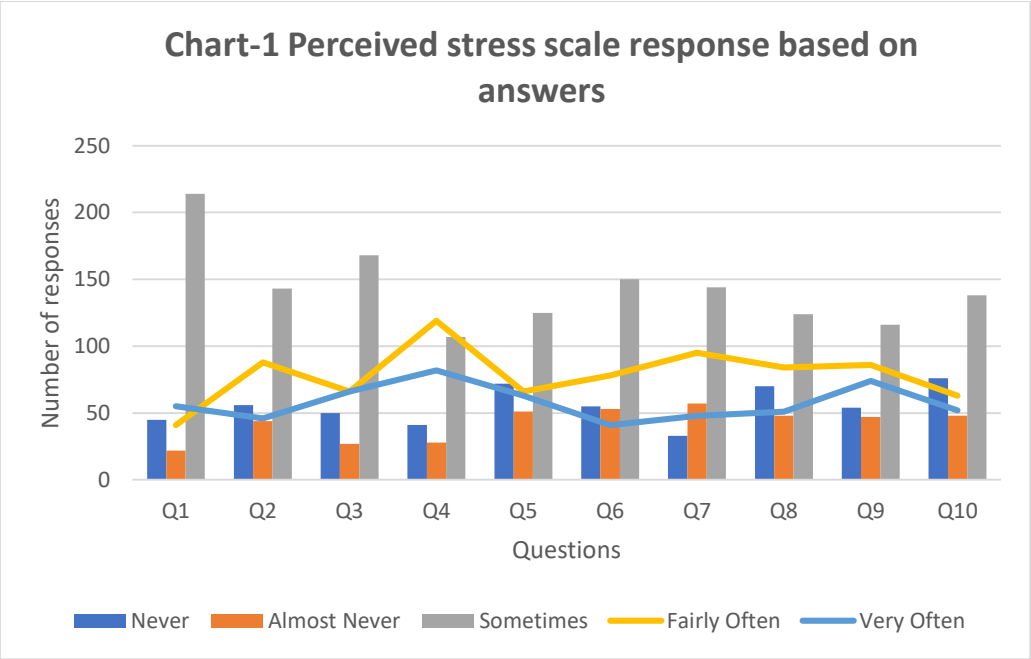
Age (in years)	Number of participants	% of participants
20-25	92	24.40%
26-30	125	33.16%
31-35	53	14.05%
36-40	55	14.58%
>41	52	13.79%

Results of Perceived stress scale:

As per perceived stress scale we were asked 10 Questions. The perceived stress scale answers of the 377 participants are as follows.

Table-4-Perceived stress scale response

	Number of participants responded for the below answers				
Question number	Never	Almost Never	Sometimes	Fairly Often	Very Often
Q1	45	22	214	41	55
Q2	56	44	143	88	46
Q3	50	27	168	66	66
Q4	41	28	107	119	82
Q5	72	51	125	66	63
Q6	55	53	150	78	41
Q7	33	57	144	95	48
Q8	70	48	124	84	51
Q9	54	47	116	86	74
Q10	76	48	138	63	52



The results of perceived stress scale are 47% of those participants between the age of 22 years and 25 years, 47.2% of those between 26 years and 30 years, 42.5% of those were between 31 years and 35 years and 0.08% of those above 36 years were found to be stressed (Severe and very severe).

Table-5- Age wise distribution of participants with stress

Age (in years)	Number of participants	% Of participants
20-25	43	47.00%
26-30	59	47.20%
31-35	23	42.50%
>36	1	0.08%

As per perceived stress scale calculation results 126 out of 377 participants (i.e.,33.42%) were in severe and very severe stressed, and the remaining participants were being in mild and moderately stressed, for that reason we were provided Stress and depression awareness leaflets and gave education of stress and depression and its complications. In those 126 participants, 44 were male participants and 82 were female participants.

Results of Hamilton depression rating scale:

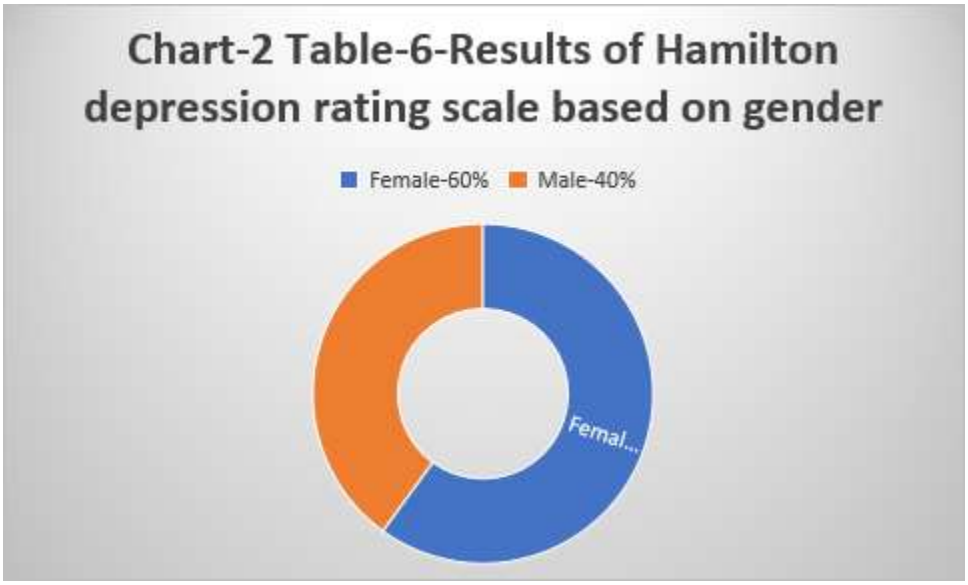
The depressed 126 study participants from perceived stress scale are needs to administered into the Hamilton depression rating scale to analyse the depression. But due to this pandemic only 43 participants can able to administered into the Hamilton depression scale.

Table-6-Results of Hamilton depression rating scale based on score

Types of depression	Percentage of participants in depression
Normal	0
Mild Depression	30 %
Moderate Depression	15 %
Severe Depression	40 %

Very Severe Depression	10 %

As per Hamilton depression rating 10% of those participants was in very Severe Depression, 40% of those participants was in Severe Depression and 15% of those participants was in Moderate Depression, 10% participants were found to be Moderately Depressed.



Overall depression based on age:

Table-6-ANOVA test based on age group of Hamilton depression rating scale's score

Age group (in years)	No of Participant were depressed	Mean value	Standard deviation	F-Value	P-Value
20-25	16	18.5	4.4121	1.083384	0.348672
26-30	22	19.2273	5.2909		
31-35	5	14.6667	6.6583		

Table 6 shows the overall depression and role depression dimensions experienced by employees based on age. Observation of the mean values shows that the overall depression is high among employees in the group aged 26-30 years with a mean value of 19.2273 and least among employees in the group aged 20-25 years with a mean value of 18.5 and also with the least standard deviation. This also indicates the consistency of depression levels among this group. There is no significant variation in the overall depression experienced by employees based on age.

To verify hypothesis, the analysis of variance (ANOVA) test was applied. The F-value was 1.083384 and the P-value was 0.348672. Therefore, H0 is accepted at the 5% depression level. This result reveals that the difference between the averages of all groups is not big enough to be statistically significant. The high depression among older employees may be due to more responsibility and accountability compared with new employees. Due to enthusiasm and less responsibility, new employees do not experience role depressions. They assist the team and do maintenance of existing projects, so they experience only low depression [14].

Discussion:

Our study was aimed at assessing the level of stress and Depression in work from home IT Professional. The study population consisted of 377 individuals (31.83% males and 68.17% females). The grading of the stress was done based on their scores. They were categorized into mild (≤10), moderate (11–20), severe (21– 30), very severe (31–40). Overall stress was more among females than males. Individuals of age 26-30 years have comparatively more stress than individuals of age 21 to 25 and more than 31. The grading of the depression was done based on their scores. They were categorized into mild (8-13), moderate (14–18), severe (19– 22), very severe (> 23).

In our study sample females were more in number than males. The gender difference may be largely due to cultural and social influences. Additional responsibilities in woman life might have led them to opt professions which are less time consuming and less stressful unlike software profession [15].

Females showed slightly higher stress and depression score than males. This might be due to additional responsibility shouldered by female population for the attainment of physiological needs of the family. Based on the duration of working hours, we found that individuals with more than 8 hours of work showed higher stress scores and depression scores [16].

Stress is a negative consequence of modern living. People are stressed due to over work, job insecurity, information overload and increasing pace of life. In this study we have shown the influence of professional life stress and depression alone as measuring tool to find that the exact nature of work from home stress in IT professionals. In this study we found only severe and very severe degree of stress and depression among the work from home IT professionals [17].

India being a forerunner in IT segment, its continuously growing largely depending on their employees' mental and physical health. Such higher rates of professional stress and depression among IT professionals could hamper the progression of IT development and also notably increase the incidence of psychiatric disorders. Concurrently the managing members of the IT industry should develop the Preventive strategies like training in stress management; frequent screening to identify professional stress and depression at the initial stages and training program to aid their employees cope with stress and promote mental wellbeing [18].

References:

1. ***Marimuthu P, Vasudevan H,*** the psychological impact of working from home during coronavirus (covid 19) pandemic: a case study.
2. ***Waters JA, Ussery W*** **(2007),** "Police stress: history, contributing factors, symptoms, and interventions", Policing: An International Journal, Vol. 30 No. 2, pp. 169-188.
3. ***Bano B, Jha RK*** **(2012),** Organizational Role Stress among Public and Private Sector Employees: A Comparative Study. The Lahore Journal of Business, 1, 23-36.
4. ***Auckland*** **(2013),** Mental Health Foundation. Stress and how to handle it (PDF Pamphlet): Mental Health Foundation of New Zealand.
5. ***Rochester, MN*** **(2020),** Mayo Clinic Mayo Foundation for Medical Education and Research. http://www.mayoclinic.org/healthy-lifestyle/stress-management/basics/stress-basics/hlv-20049495 [Accessed: 17/04/20]
6. ***Beehr T, Newman JE***. Job stress, employee health, and organizational effectiveness: a facet analysis, model, and literature review, Personnel Psychology. 1978; 31(4):665-99.

7. ***Tafet GE, Nemeroff CB, (2016),*** The Links Between Stress and Depression: Psychoneuroendocrinological, Genetic, and Environmental Interactions. J Neuropsychiatry Clin Neurosci 2016; 28:77–88; doi: 10.1176/appi.neuropsych.15030053
8. ***Alkhamees AA, Alrashed SA, Alzunaydi AA, Almohimeed AS, Aljohani MS,*** The psychological impact of COVID-19 pandemic on the general population of Saudi Arabia, Compr Psychiatry. 2020 doi: 10.1016/j.comppsych.2020.152192s
9. ***Gold PW***: The organization of the stress system and its dysregulation in depressive illness. Mol Psychiatry 2015; 20:32–47
10. ***Nemeroff CB:*** The preeminent role of early untoward experience on vulnerability to major psychiatric disorders: the nature-nurture controversy revisited and soon to be resolved. Mol Psychiatry 1999; 4:106–108
11. ***Heim C, Nemeroff CB:*** The role of childhood trauma in the neurobiology of mood and anxiety disorders: preclinical and clinical studies. Biol Psychiatry 2001; 49:1023–1039
12. ***Cohe S, Kamarck T, Mermelstein R (1983)*** A global measure of perceived stress. Journal of Health and Social Behavior, 24, 386-396
13. ***Hamilton M (1960)*** A rating scale for depression. J Neurol Neurosurg Psychiatry; 23:56–62
14. ***Lopez JF, Akil H, Watson SJ:*** Neural circuits mediating stress. Biol Psychiatry 1999; 46:1461–1471
15. ***Heim C, Newport DJ, Mletzko T, et al:*** The link between childhood trauma and depression: insights from HPA axis studies in humans. Psychoneuroendocrinology 2008; 33:693–710
16. ***Adam G, (2020)*** The Productivity Pitfalls of Working from Home in The Age of Covid-19
17. **Bhatia P, Kumar P (2005)** Part II – Clinical applications and guidelines. 11(4):711–717.
18. ***Anderson S. (1998),*** The Work-at-Home Balancing Act: The Professional Resource Guide for Managing Yourself, Your Work and Your Family at Home, New York: Avon Books.