

Research Paper

Study the Productivity and Perceived Stress among Remote and In-office Employees

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ABSTRACT

This study investigates the productivity and the degree of perceived stress among people who are doing work-from-home and among regular office going people, with a focus on gender differences. The inclination of work-from-home driven by rising developments in the IT as well as the COVID-19 pandemic, definitely raised questions about its effect on workers performance and welfare. This research compares work environments of remote and in-office employees to understand their effects on productivity and perceived stress. A total of 60 employees (30 remote and 30 in-office) from various industries in Pune city participated in the study. Productivity was assessed using the Endicott Work Productivity Scale (EWPS), while perceived stress was measured using the Perceived Stress Scale (PSS). Results indicated that in-office employees had significantly higher productivity levels than remote employees ($p < 0.01$). Sex distinctions regarding productivity did not show significance, but women office workers noted greater perceived stress levels compared to male employees ($p < 0.01$). Furthermore, remote employees experienced significantly greater degrees of stress in comparison with their regular office going workers counterparts ($p < 0.01$). A negative correlation was found between productivity and perceived stress, indicating that greater degree of stress is related with lesser productivity. These results insist on the necessity for the institutions for considering both the advantages and challenges of work-from-home specifically in association with the welfare as well as quality of the work among office workers. The study contributes with important understandings for employers as well as for policymakers in making a workplace which enhances productivity as well as reduces stress.

Keywords: *Productivity, Perceived Stress, Remote employees, In-office employees*

During the current times, character regarding jobs have gone through remarkable change because of the emergence of work -from-home which has challenged the traditional in-office work model. The reason behind the wide acceptance of work from home across a majority of industries can be primarily explained by the development in digital technology and the global consequences associated with the COVID-19 pandemic. Particularly the transition has made away towards important questions about its consequences on the productivity and stress levels of employees considering that both these environments come with their own set of advantages and disadvantages.

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Productivity and Perceived Stress are two of the most important factors that affect the performance and overall well-being of employees. Work from home has its set of advantages which include flexibility, autonomy and enables the workers to work in a personalized environment which can lead to a surge in productivity. However, social isolation, lack of direct supervision and a struggle to maintain work-life balance can lead to stress and are known disadvantages of remote work. On the contrary, work from office provides structured supervision, enhanced team collaboration as well as capacity for distinguishing between one's private as well as working life. Nevertheless, this can lead to stress inducing factors such as lengthy commutes, workplace distractions and inflexible schedules.

Productivity:

When it comes to workplace efficiency, productivity indicates an employee's ability to complete task effectively and at the same time achieving maximum output within a certain amount of time. Some definitions of Productivity include: Drucker, P. (1999): "Productivity is the balance between all factors of production that ensures the maximum output with the least effort." Sumanth, D. J. (1998): "Workplace productivity is a measure of how efficiently employees use their time, energy, and resources to generate meaningful output." Kendrick, J. W. (1984): "Productivity is the ratio of output to input in a production process, measured over a specific period."

Concept of Productivity in Remote and In-Office Work:

When discussing productivity in terms of work-from-home and regular office going workers, it is influenced by work structure, flexibility, levels of stress and external distractions. While remote work offers independence and a reduction in transit time which can potentially enhance productivity, it comes with its own set of challenges like lack of direct supervision and social isolation. At the same time, in-office work allows employees to work in a structured supervision and mutual support but may be hampered by workplace distraction and commuting stress.

Perceived Stress:

Perceived stress means a person's personalized assessment of to what extent they consider situations coming in their lives as taxing considering their capacity for coping with challenges and external pressures. This perception is influenced by workload, work environment, social support, and personal resilience. Some definitions of Perceived Stress include: Cohen, S., Kamarck, T., & Mermelstein, R. (1983) "Perceived stress is the degree to which situations in one's life are appraised as stressful, depending on an individual's coping abilities and external demands." Lazarus, R. S., & Folkman, S. (1984) "Stress is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding their resources and endangering their well-being."

Concept of Perceived Stress in Remote and In-Office Work:

When discussing perceived stress in remote and in-office settings, it is affected by work environment, job expectations and work-life balance. Remote employees may experience elevated levels of stress which can be explained by factors such as social isolation, communication challenges and difficulty in establishing boundaries among one's private as well as in one's working life. However, stress levels of regular office going workers can be increased by factors such as long commutes, workplace distractions and inflexible schedules. The levels of perceived stress are a direct influence on quality of work by the office workers, motivation as well as on overall welfare.

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Rational of the Research:

In recent times, work environment has shifted from the conventional desk-oriented workings to work-from-home and also reshaped the modern workplace especially in consideration to the developments and progress in the IT sector as well as the global impact of the COVID-19 pandemic. While organizations are still in the process of adopting flexible work arrangements, it is critical for understanding the effect of these distinct workplaces upon the productivity as well as stress levels of employees.

The motive of this research focuses towards looking for and comparing levels of productivity and perceived stress of regular office going workers and those doing work-from-home. While remote work has its own perks which include flexibility, decreased transit time and enhanced work-life equilibrium, this also gives out its fair share of challenges which include isolation, hurdles in communication and unclear borders in one's private as well as work life. At the same time, in-office work facilitates a structured environment, direct supervision and social interactions. However, it may lead to higher levels of stress due to travelling, fixed schedules and workplace distractions.

By examining these factors, the research contributes with important discoveries with the context of advantages well as disadvantages of both the work environments and will encourage institutions to frame policies which encourage welfare as well as strengthen the fruitfulness of the workers. The results of the research will prove beneficial in the case of employers, professionals working in the Human Resource sector as well as policymakers in enhancing productive workplace action plans which will elevate job performance and decrease stress among employees.

REVIEW OF LITERATURE

The change to work-from-home has put up notable queries regarding its effect upon worker's creativity as well as stress levels. Few research say that work-from-home improves productivity and reduces stress, some put forth issues like burnout and imbalance in work-life. This review explores existing research on these variables to determine the relationship between work environments, perceived stress, and productivity.

Allen et al. (2021) concluded that 64% of remote employees experienced higher stress due to blurred work-life boundaries, making it difficult to detach from job. This led to long hours of working as well as an "always-on" pattern, where worker felt under pressure for constantly showing their availability. As a result, remote work negatively impacted mental well-being.

Bailey & Kurland (2002) examined the effect work-from-home on workers behaviour, so it was found that some work-from-home employees have a hard time dealing with one's discipline, heading towards fluctuations in productivity. Their research highlighted key problems, like: absence of hands-on inspection, increased disturbance in the houses and variability in job output.

Bloom et al. (2015) found that work-from-home employees had greater productivity by 13% as compared to counterparts who were regular office going workers. Because of fewer distractions and flexible schedules. This research was conducted as an experiment which was randomized with Ctrip, a travel company which was Chinese, where 500 employees were divided into two groups: one working remotely and the other in-office.

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Choudhury et al. (2020) did research on impact of productivity on remote work. It was seen that companies adopting remote work models experienced a 4.4% increase in productivity. This productivity boost was primarily attributed to: Eliminating commuting time allowed employees to start work more refreshed and focused, while greater autonomy over schedules improved efficiency and job satisfaction. Additionally, fewer office distractions enabled better concentration and deep work.

Cohen & Janicki-Deverts (2012) found females reported to be having greater degrees of perceived stress in comparison to the males. Their research suggests that this difference is influenced by both biological and sociocultural factors.

Dingel & Neiman (2020) concluded that employees in certain industries, such as manufacturing and healthcare, faced challenges in maintaining productivity while working remotely. Hands-on jobs in industries like manufacturing and healthcare required physical presence, making remote work impractical. Only roles relying on digital tools and communication were well-suited for remote productivity.

Eurofound (2020) found that remote workers often worked longer hours, which blurred borders of work life as well as of private life. This led to heightened strain as well as a higher risk of burnout, as employees struggled to disconnect. Prolonged screen time and constant work engagement contributed to mental and physical exhaustion.

Felstead & Henseke (2017) reported that remote workers experienced lower stress due to flexible schedules and the ability to work in comfortable environments.

Golden & Veiga (2005) found that in-office employees benefited from immediate feedback and team collaboration, leading to enhanced efficiency. In-office employees benefited from real-time feedback and stronger team collaboration, leading to improved communication, faster problem-solving, and greater efficiency.

Kelly et al. (2020) reported that as work-from-home increases autonomy, it also amplifies gender disparities, as women often feel the strain of multitasking between work and home duties.

Prasad K D V, Vaidya R, Rani R. (2023) conducted a study that showed that work-from-home was among the prominent element which caused anxiety as well as stress among the workers. Prominent cause being absence of communication with colleagues, lack of regular entertainment during short breaks, also job and family life disputes. Other important finding communicated that lack of colleague– worker communication demoralizes the workers as there remains no scope for competition between the workers when working-from-Homes.

Toscana and Zappala (2020) conducted a study on the effect of work-from-home on workers PR from varied angles. Data was gathered from 265 participants from different spears of life. It was seen that PR of the workers reduced when working from homes at the time of the pandemic. Other researches like Pantajali an Bhatta 2022 and Prasetyaningyas et al. (2021) indicated that remote working lead to rise in the PR of the workers).

Toscano & Zappalà (2020) concluded that social isolation in fully remote roles led to loneliness due to a lack of workplace interactions. Additionally, limited face-to-face communication reduced emotional support, increasing stress levels.

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Yang et al. (2021) inferred that team-based projects were less efficient in remote settings primarily due to communication barriers. Their study highlighted key challenges such as: Lack of in-person interactions in remote settings led to delays in problem-solving and coordination challenges, especially across time zones. Additionally, virtual communication barriers weakened collaboration, causing misunderstandings and slower decision-making.

Statement of the problem:

To study the productivity and perceived stress among remote and in-office employees.

Objectives of the study:

1. To study the levels of productivity between remote and in-office employees.
2. To study the gender distinctions in levels of productivity between remote and in-office employees.
3. To study levels of perceived stress between remote as well as in-office employees.
4. To study gender difference in levels of perceived stress between remote as well as in-office employees.
5. To study relationship between employee productivity and level of perceived stress.

Hypothesis of the study:

1. Productivity of in-office employees will be higher than that of remote work employees.
2. Productivity of the female employees will be higher than that of male employees.
3. The perceived stress level of the remote employees will be higher than that of in-office employees.
4. The level of perceived stress of the female workers will be higher than that of male employees.
5. There will be a negative association between work productivity levels of perceived stress among remote as well as in-office employees.

Research Variables:

A) Independent Variables-

- a) Work Environment: 1. Remote work employees 2. In-office employees
- b) Gender: 1. Male 2. Female

B) Dependent Variables-

- a) Productivity
- b) Perceived Stress

Selection of Participants: In the current research, the investigator chose in total 60 employees as the sample. Among them, 30 were remote workers (having 15 men and 15 women employees), and 30 in-office employees (having 15 men and 15 women employees). Sample was selected from various industries in Pune city using the technique of Purposive Sampling for every category.

Research Design of the Sample: 2 x 2 Factorial designs were used

Gender (B)	Type of Employees (A)		Total
	Remote work Employee A1	In- office employee A2	
Males (B1)	15	15	30
Females (B2)	15	15	30
Total	30	30	60

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Tools for the Study:

- 1. Endicott Work Productivity Scale (EWPS- 1997).** It was developed by Endicott. It has 25 items; every item was scored on a 5-point Likert scale (0 to 4). Each item is rated as 0 (No Impairment) to 4 (Severe Impairment) based on how much a particular issue affects work productivity. The addition of all the item score is the overall score. Greater the scores, higher the impairment in productivity. Internal consistency reliability Cronbach's alpha coefficients were greater than 0.90.
- 2. Perceived Stress Scale (PSS, 1988).** It was invented by Sheldon Cohen. It consists of 10 questions. The questions of the measure enquire regarding how the individual felt or about his or her thoughts from the past month. Every question is marked on a 5-point scale (0- never, 1-almost never, 2- sometimes, 3- fairly often, 4- very often). Some items are framed positively and require a reverse scoring. Greater scores indicate Greater perceived stress. Reliability (Cronbach's Alpha) 0.78. The validity and scale content of this test are remarkable, and the KMO coefficient is 0.82.

RESULTS AND INTERPRETATION

For the testing of hypothesis following statistics were used and interpret the result.

Table 1: Mean difference on productivity and perceived stress among employees.

	Employee Type	N	Mean	SD	Df	t	P value	Remark
Productivity	Remote	30.00	13.17	2.55	58	2.91	.005	Significant
	In office	30.00	11.53	1.72				

Above table shows mean comparison among work-from-home and regular office going workers' productivity. Significant mean difference found among work-from-home and in regular office going workers on productivity ($t=2.91$, $p<0.01$). For remote employees, mean=13.17, SD= 2.55 and for in office employees, mean=11.53, SD=1.72 on productivity. It indicates that In-office employees shown significantly high level of productivity than remote employees. Hypothesis number one stating that "Productivity of the in-office employees will be higher than that of remote work employees" is accepted.

Table 2: Mean difference among men and women on productivity and perceived stress.

	Gender	N	Mean	SD	df	T	P value	Remark
Productivity	Male	30.00	11.90	1.90	58	1.53	.132	Not Significant
	Female	30.00	12.80	2.61				

- Above table shows gender difference on productivity. No significant difference found between male and employees on productivity ($t=1.53$, not significant).
- Hypothesis number two stating that "Productivity of the female employees will be higher than that of male employees" is rejected.

Table 3: Mean difference on productivity and perceived stress among employees.

	Employee Type	N	Mean	SD	df	T	P value	Remark
Perceived Stress	Remote	30.00	12.93	2.07	58	3.26	.005	Significant
	In office	30.00	11.30	1.80				

Above table shows mean comparison among work-from-home and in regular office going workers on perceived stress. Significant mean difference found among work-from-home and regular office going workers on perceived stress ($t=3.26$, $p<0.01$). For remote employees,

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mean=12.93, SD= 2.07 and for in office employees, mean=11.30, SD=1.80 on perceived stress. It indicates that remote employees shown significantly high level of perceived stress than In-office employees.

Hypothesis number three stating that “The perceived stress level of the remote employees will be higher than that of in-office employees” is accepted.

Table 4: Mean difference among men and women on productivity and perceived stress.

	Gender	N	Mean	SD	df	T	P value	Remark
Perceived stress	Male	30.00	11.40	1.54	58	2.80	.007	Significant
	Female	30.00	12.83	2.34				

Above table shows gender difference on perceived stress. Significant distinction found among men as well as workers on perceived stress ($t=2.80$, $p<0.01$). For male employees, mean=11.40, SD= 1.54 and for female employees, mean=12.83, SD=2.34 on perceived stress. It indicates that female employees shown significantly high level of perceived stress than male employees.

Hypothesis number four stating that “The perceived stress level of the female employees will be higher than that of male employees” is rejected.

Table 5: Correlation between work productivity and perceived stress level among remote and in-office employees,

Variable	N	R	Sign
Productivity and perceived stress	60	.27*	0.03

Above table shows correlation between productivity and perceived stress among employees. Correlation value $r=0.27$ found significant at 0.05 level. As per manual about productivity, low score indicates high productivity and in case of perceived stress, high score indicate high level of productivity. Hence the result of correlation is found positive but actual is negative as per manual scoring method.

There will be a negative relationship among work productivity and perceived stress level among remote and in-office employees” is accepted.

CONCLUSION

1. Productivity of the in-office workers is greater as compared to remote workers.
2. Productivity of the male workers is greater as compared to female workers.
3. The level of perceived stress of the remote workers is higher than that of regular - office going workers.
4. Perceived level of stress of the male workers is higher than that of female employees.
5. A negative relationship among work productivity and level of perceived stress between remote and in-office employees.

Limitations of the Study:

The area of the research of this study is quite limited as it was conducted in Pune city only. Also, there were limitations in the research pertaining to the size of the samples taken. Also, this study was done only through quantitative research method.

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Conflict of Interest

The author(s) declared no conflict of interest.

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