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IMPACT OF TECHNO-STRESS ON GIG WORKERS WELLBEING IN IT SECTORS OF CENTRAL GUJARAT

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Abstract: *Purpose – Techno-stress amongst the gig workers in IT sectors have become a raising alarm as technological advancement & proliferated of telecommunication networks has been reshaping the commercial landscape. On demand services are one such innovation for commerce company in gig economy.*

While the wellbeing of gig workers in on demand IT services have been a debatable issue. It compels the gig workers to do multitasking in urge of earning high which somewhat creates techno-stress naturally. This paper examines impact of technology- include stress on the mental health of gig workers in IT sectors.

Research finding- Research in this area typically explores various dimensions of techno-stress, including studies employ quantitative research methods to investigate the relationship between techno-stress and wellbeing, examining factors such as job performance, job title, anxiety, depression, leaving current job or not and its impact on over productivity of gig workers. Understanding the background of this study involves delving into existing literature, which often highlights the prevalence of techno-stress amongst the gig workers in the IT sector, its causes, and its consequences for both individuals and organizations.It seeks to explore how the constant exposure the gig workers deals, due to technological advancement and the pressure to stay updated, which affects their mental and physical health certainly, but they don't give up their current job as it is a need of an hour. The sample size of 235 has been taken of gig workers working in IT sectors in Gujarat major cities like Vadodara, Nadiad, Anand & Ahmedabad. We have employed the non-probability convenience sampling method and statistically significant Anova Test & Chi Square Test has been applied on different techno-stress factors experienced by gig workers at the workplace and its impact on employee performance, which is having positive relationship. Additionally, study suggest to aimed at mitigating techno-stress, such as mindfulness training, ergonomic improvements, organizational policies that gives better work environment amongst the gig workers in Gujarat.

Keywords: *Gig economy, IT Sectors/Market, Techno-stress, Wellbeing*

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INTRODUCTION:

The information technology (IT) sector in Gujarat has experienced notable expansion in recent times, establishing itself as a significant centre for IT and IT-enabled services (ITes) in India. Gujarat ranks second nationally in attracting substantial investments in the IT/ ITes sector (Work, 1996).

- ✓ The state government has set up various IT parks and special economic zones (SEZs) to lure IT companies and offer a conducive business environment.
- ✓ Additionally, the government has introduced policies like the Gujarat IT Policy 2022-2027, aiming to create 100,000 direct jobs and boost IT exports to Rs. 25,000 crores by 2027.

The impact of techno-stress on Gig workers' wellbeing in the IT sector is a crucial area of study. Gig economy .Techno-stress refers to the negative psychological and physiological reactions that occur when individuals feel overwhelmed by the demands of technology in their work environment. In the IT sector, where gig workers are constantly exposed to rapidly evolving technologies and high-pressure deadlines, techno-stress can have significant implications for employee wellbeing, productivity, and job satisfaction(Donovan, 2022).

In today's time, two ways of gig economy can be understood namely physical & digital platforms. Physical platform of gig economy is location bounded were workers like food delivery, courier, riders are working while digital economy involves online task that are referred to as online labour market online platform like Amazon mechanical turk, upwork, software developers, coding, data analytics, data verification, data processing, data interpreting, web designing, data mining and many more services are provided in IT sector that provides digitalization of work place & work processes. In recent years online labour market has grown immensely and contributed greatly towards gig economy(Donovan, 2022).

Gig Economy/IT sectors

The gig economy in India has experienced significant growth, with the number of gig workers increasing from 2.52 million in 2011-12 to 6.8 million in 2019-20 (Sood & Singh, 2023). This sector has the potential to contribute 1.25% to India's GDP and provide up to 90 million jobs in non-farm sectors (Subbiah, 2023). The COVID-19 pandemic has accelerated the adoption of remote work and gig employment, dispelling reservations about the dependability of gig workers (Pant & Majumder, 2022). Digitalization and the proliferation of internet communication channels have been key enablers of the gig economy's growth, with a positive correlation observed between the number of internet users

and gig workers in India (Mohanty & Jethy, 2023). The gig economy presents both opportunities and challenges for workers and organizations, necessitating the redesign of HR policies and processes to accommodate and foster inclusion for gig workers (Jyoti Joshi Pant, 2022).

IT Sectors/Market

The IT sector has seen a significant rise in freelancing and gig work, driven by the growth of online labor platforms and increased internet adoption globally (Gheorghe, 2015; Stephany et al., 2021). These platforms facilitate remote work opportunities, particularly in software development and tech-related fields, with a notable concentration of freelancers in countries like India (Stephany et al., 2021). The gig economy is transforming traditional labor markets, offering new opportunities for workers and businesses alike (Datta et al., 2023). However, it also presents challenges for IT leaders in terms of talent acquisition and management (Taylor & Joshi, 2018). The trend towards freelance and contract work is expected to continue growing, with estimates suggesting that up to 50% of the U.S. workforce could be engaged in gig work within the next decade (Taylor & Joshi, 2018). This shift has implications for economic growth, labor productivity, and the future of work in the digital age (Datta et al., 2023).

Techno-stress

These papers explore techno-stress, the stress experienced by individuals due to information and communication technologies (ICTs) in the workplace. (Monideepa tarafdar, 2019)propose a "techno-stress trifecta" framework, highlighting both negative (techno-distress) and positive (techno-eustress) outcomes, and emphasizing the role of IS design in mitigating techno-stress. Ayyagari et al. (2011) investigate the technological antecedents of techno-stress, identifying key technology characteristics (usability, intrusiveness, and dynamism) that contribute to various stressors such as work overload and role ambiguity. Their study of 661 professionals reveals that intrusive technology characteristics are the primary predictors of techno-stress. Both papers emphasize the prevalence of techno-stress in organizations and suggest potential interventions. The research highlights the complex relationship between technology and stress in the workplace, calling for further investigation into the positive aspects of techno-stress and the development of IS design principles to address this growing phenomenon (Tarafdar et al., 2019; Ayyagari et al., 2011).

1.5 Well being

The digitalisation & high demand work among gig workers in Online labour market

creates stress and anxiety among the gig workers and which results into poor health wellbeing. Technology characteristics has techno-stress as antecedents leading to poor job performance, hence results into inadequate health & its wellbeing. (Mohammed, 2022)Different wellbeing dimensions are cognitive wellbeing & affective wellbeing& also how the constant exposure to technological advancement and the pressure to stay updated with them affect the mental and physical health of gig workers in IT professionals. In addition to techno-stress indicating negative impact on overall performance of the gig workers. The stress results into invasion, uncertainty, lack of quality sleep, role ambiguity among the gig workers in IT and may lead to great loss to the organisation due to lack of productivity.

LITERATURE REVIEW

(Hurbean, L., Dospinescu, et al, (2022) investigated the influence of instant messaging (IM) techno-stressors on the work performance and well-being of Tele-working individuals. With a focus on the impact of IM usage, the research involves 372 employees from Romanian organizations utilizing IM at work. The study analyzes the relationship between IM usage, perceived techno-stressors, work performance, and well-being.

(Umair, A, Conboy,et al, (2023)The techno-stress in the digital gig economy, emphasised on the impact of online labor markets (OLMs) on workers' discontinuous intention. Using a sample of 366 workers from a popular OLM, the research explores associations between OLM characteristics (e.g., technology complexity, feedback) and work-related outcomes such as work overload and job insecurity. Contrary to previous findings, technology complexity is found to be linked to work overload. By integrating job characteristics theory and person-environment fit theory, the study contributes to techno-stress literature. Data was collected via Amazon Mechanical Turk over 15 days in May and June 2020, addressing data quality through measures like reCAPTCHA tests. The study identified a gap in understanding how techno-stress can yield beneficial outcomes in gig environments, suggesting the need for nuanced exploration of the interplay between job characteristics, techno-stressors, and worker demographics.

(Azzahra, S., Ayunanda, S. N.,et.al, 2022) It has investigated the impact of digitalization on employee well-being during the COVID-19 pandemic, utilizing a meta-analysis of literature from 2019 to 2021. The study focuses on psychosocial effects, including techno-stress, work stress, workload, anxiety, burnout, fatigue, and isolation, resulting from increased digitization. Findings reveal adverse outcomes, with gender differences showing higher techno-stress levels among women.

The research emphasizes the importance of employees adapting to digital advancements by managing time effectively and understanding technology nuances. However, limitations such as the cross-sectional design and reliance on self-reported data are acknowledged, urging the need for longitudinal studies and diverse data sources. Also identifies research gaps, including prolonged smartphone use, situational factors influencing techno-stress, the relationship between work engagement and techno-stress, and the role of gender and age in technology adaptation, suggesting avenues for future investigation in understanding digitalization's complexities on employee well-being.

(Tara, N., & Iqbal, S. M. J. , 2023) It has been analyzed that the intricate dynamics affecting the psychological well-being of gig workers, emphasizing the interplay between job demands, resources, and techno-stress. Examining factors like job insecurity, autonomy, and the unique aspects of gig work, the study contributes to understanding the nuanced relationship between work characteristics and well-being in this expanding sector. It highlights the limited scholarly exploration of gig workers' welfare in digital labor markets, despite increasing interest in management and occupational health domains. The study proposed a theoretical model combining the Job Demands-Resources framework and the techno-stress model for insight into gig workers' psychological well-being, acknowledging the need for empirical validation. Identifying research gaps, it suggests exploring the influence of other job demands and resources, personal resources, social and economic factors, and motivations on gig workers' well-being, providing avenues for future in-depth research within the gig economy context.

(Wang, Ding, & Kong, 2022) This research focused to understand how techno-stress overload on workers wellbeing and the impact of workplace knowledge diversity. The collected data set 235 employees from three Chinese manufacturing companies. The findings showed that techno-stress negatively impacts employees work wellbeing. The study contributed to the literature on managing technology on work exhaustion and emphasized the importance of a knowledge diverse work environment.

(Umair, 2023) This research threw the light on the causes and effects of techno-stress related to employee in OLMs in labor’s health. The data was collected from 366 workers threw web survey. Findings suggest a relationship between technology complexity and work overload with positive feedback correlated with both job security and work overload.

(Hurbean, 2022) This has been researched that COVID – 19 pandemics has adopted an

instant messaging (IM) in organization for improved workers productivity. But this has resulted to a negative effect at workplace like technological stress. An analysis of 372 Romanian workers revealed that the use of IM has an impact on the perception of technological complexity and affects workers wellbeing and productivity.

(Molino, 2020)This research has broaden the impacted of the COVID – 19 pandemic in Italy; where remote work affected the countries employment. It examined techno-stress during the pandemic and examined the psychometric properties of the tech-stress producer's scale. The three factors structure of the scale was validated by the results, which is also correlated between techno-stressors, workload, and behavioral stress. The study offered information on remote work practices and employees health.

(Batta & Kar, 2023)This study investigated the connection between employee attrition in Indian IT companies during the epidemic and techno-stress. Using the 'person-environment fit' concept, the results indicated that employees' stress levels are raised by ICTs because of their greater reliance on them. The study highlighted the possible influence of ICTs on employee satisfaction and supports the involvement of six dimensions in employee attrition.

(Yener, 2021)The paper focused on discussion about the potential negative impacts of using technology at work was so intensified, that it called for additional study on the direct and indirect effects on productivity. All of the predictions were supported by a study that examined a model with two moderators, and it was concluded that moderators might help reduce burnout and techno-stress. The study also emphasized the need for more moderators in studies on techno-stress and the long-term impacts of technology on human psychology and health. Potentially higher stress levels and the requirement for time-management therapies were two practical ramifications.

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requirement for time-management therapies were the two practical ramifications.

RESEARCH GAP

This study discovered the problems & challenges of Techno-Stress Factor in Online Labour Markets faced by the Gig workers in IT sector, especially in Gujarat state. Earlier this was studied in India & many countries like Japan, US, China in previous 5 years but not much has been explored in many cities of Gujarat state.

PROBLEM STATEMENT

"The problem statement is to know how the constant exposure to technological advancement and the pressure to stay updated whether the techno-stress impacts gig workers wellbeing positively or negatively in IT sectors of central Gujarat"

RESEARCH METHODOLOGY

Research Objectives

- To assess the impact of techno-stress on gig worker's performance.
- To investigate the association between techno-stress and leaving the current job position.
- To examine the relationship between techno-stress and mental health indicators such as anxiety and worries.
- To explore the link between techno-stress and productivity among gig workers in IT sector.

Hypothesis:

Null Hypothesis (Ho1): There is no significant association between techno-stress level and the perceived impact on gig workers performance.

Null Hypothesis (Ho2): There is no significant difference between level of techno-stress and reason they would consider leaving of current job.

Null Hypothesis (Ho3): There is no significance relationship between Techno-stress and anxious & worried mental health Indicator.

Null Hypothesis (Ho4): There is no significant difference in mental health of gig workers based on their job position/ title.

Methodology:

The present study has been conducted via structures questionnaire of Techno-stress amongst the Gig workers in IT sectors of Gujarat. This research employs a **descriptive research design**, which entails gathering data through questionnaires that includes demographics information of the respondents and other 9 statements related to the topic of techno-stress of Gig workers in IT were collected through Google forms including job performance, mental health indicators related to anxiety, depression, lack of concentration at work, loss of interest in activities, and feeling irritating & anger which ultimately impacts physical health of the gig workers. Even

though Information overload, constant connectivity, unclear expectation, creates a feeling to leave the current job but gig workers reacts positively to it. **Non-probability convenience sampling method** applied to gather data with the questionnaire method serving as the primary tool for data collection. Questionnaire were sent to gig workers working as a software Engineer, IT consultant, System Analyst, Project Manager in IT sectors in major cities of central Gujarat like Vadodara, Nadiad, Anand & Ahmedabad. Total respondent for the study is 235 gig workers from the population consist of 148 Males & 87 Females of which majority are less than age of 40 years. To know the relationship between techno-stress level and the perceived impact on gig workers performance chi square test has been run, while also ANOVA test has been applied know the significant difference between techno-stress and reasons they would leave the current job. At the same time ANOVA test has been applied to know the difference between techno-stress and anxious / worried of respondents as well as techno stress impact with job titles.

DATA INTERPRETATION

Table-1
Techno-stress of Gig workers of Total 235 in IT Sector

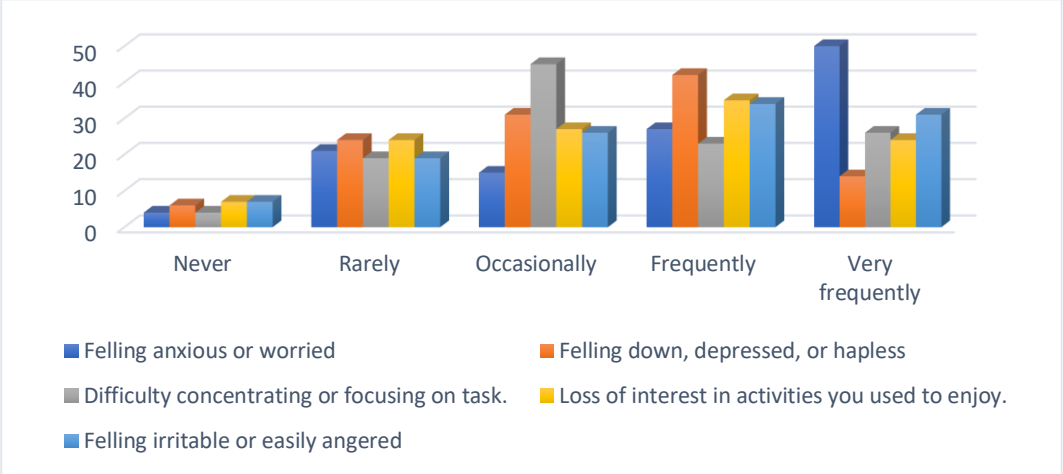
Variable	Category	Frequency(n)	Percentage(%)
Gender	Male	148	62 %
	Female	87	38%
Age	18-25	76	32%
	26-35	78	33%
	36-45	48	20%
	46-55	22	9%
	Above 55	6	6%
1.Job Titles	Software engineer	78	33.3%
	IT consultant	40	17.%
	System analyst	33	14%
	Project manager	21	9%
	Other	63	27%
	Total	235	100%
2.Level of techno-stress (1 to 5 lowest to highest)	1	4	1.7%
	2	48	20.5%
	3	46	19.7%
	4	61	25.6%
	5	76	32.5%
3.Feel Anxious	Always	34	14.5%
	Often	63	26.5%
	Sometimes	77	32.5%
	Rarely	58	24.8%
	Never	3	1.7%

4.Depression at work	Always	28	12%
	Often	36	15.4%
	Sometimes	71	29.9%
	Rarely	90	38.5%
	Never	10	4.3%
5.Quality of your sleep (1 to 5 – lowest to highest)	1	8	6.8%
	2	33	28.2%
	3	29	24.8%
	4	29	24.8%
	5	18	15.4%
6.Physical health complaints	Never	9	4.3%
	Occasionally	110	47%
	Sometimes	58	25.6%
	Often	34	14.5%
	Always	24	8.5%
7.Reasons for leaving your current job	Techno-stress	129	55%
	Work-life balance issues	35	15.3%
	Lack of career advancement opportunities	36	15.6%
	Low salary or benefits	23	10%
	Dissatisfaction with management	12	5%
8.Factors of techno-stress	Information overloaded	94	40.2%
	Constant connectivity	94	40.2%
	Unclear job expectation	47	19.7%

Table-2

9. Mental health indicator - *please rate how often you experience the following in the past two weeks using a scale of 1 (never) to 5 (very often)*

	Feeling anxious or worried	**Feeling down, depressed, or helpless**	**Difficulty concentrating or focusing on task.**	**Loss of interest in activities you used to enjoy.**	**Feeling irritable or easily angered**
Never	8	12	8	14	15
Rarely	42	48	38	48	38
Occasionally	31	62	90	54	52
Frequently	54	84	46	70	68
Very frequently	100	29	52	48	62
Total	235	235	235	235	235



The bar graphs represent that, Depression factor shows that a significant portion of the respondent's experience feelings of depression frequently or very frequently, with 77% reporting feeling down, depressed, or helpless occasionally or more often. Difficulty Concentrating Similarly, difficulty concentrating or focusing on tasks seems to be a common issue, with 64% of respondents reporting experiencing it occasionally or more frequently. Loss of Interest Loss of interest in activities they used to enjoy is another prevalent issue, with 72% of respondents reporting experiencing it frequently or very frequently .Irritability: A substantial portion of respondents (88%) reported feeling irritable or easily angered, with 61% experiencing it frequently or very frequently. Anxiety is also a significant concern, with 85% of respondents reporting feeling anxious or worried occasionally or more often, and 55% experiencing it frequently or very frequently.

Hypothesis Testing:

Null Hypothesis (Ho1): There is no significant association between techno-stress level and the perceived impact on gig workers performance.

*Rate your level of techno-stress experienced in the workplace. (1 to 5 - lowest to highest) * How do you perceive Techno-stress affects employee performance? Crosstabulation*

		How do you perceive Techno-stress affects employee performance?			
		Positively	*Negatively*	*No significant impact*	*Total*
Rate your level of techno-stress experienced in the workplace. (1 to 5 - lowest to highest)	1	0	2	2	4
	2	12	28	8	48
	3	16	22	8	46
	4	10	40	10	60
	5	0	60	16	106

Total	38	152	44	235

Chi-Square Tests

	Value	*df*	*Asymptotic Significance (2-sided)*
Pearson Chi-Square	16.225[a]	8	.039
Likelihood Ratio	21.064	8	.007
Linear-by-Linear Association	3.429	1	.064
N of Valid Cases	234		

0 cells (00.0%) have expected count less an 5. The minimum expected count is .32.

"The obtained p-value of .039 is significantly less than the predetermined threshold of 0.05. Therefore, based on this result, we reject the null hypothesis in fever of the alternative hypothesis."

Ho_2: There is no significant difference between level of techno-stress and reason they would consider leaving of current job.

ANOVA
Techno-stress and reason of leaving the job

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Between Groups	3.261	4	.815	.539	.707
Within Groups	348.033	230	1.513		
Total	351.294	234			

As the P value of F-test is 0.707 which is more than 5% level of significance, so we fail to reject null hypothesis which means there is no significant difference between level of techno stress and reason they would consider leaving of current job.

(Ho_3): There is a significance difference between techno-stress and anxious & worried mental health indicator

ANOVA
MH_Anxious_and_Worried

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Between Groups	12.133	4	6.066	4.073	.020
Within Groups	169.782	229	1.489		
Total	181.915	234			

The obtained p-value of 0.020 is less than the predetermined threshold of 0.05. Therefore, based on this result, we reject the null hypothesis in Favour of the alternative hypothesis. Hence, techno-stress and mental health indication factor ie anxious & worried due to digital work of gig workers have positive relationship with each other**.**

(H_{O4}): There is significant difference in mental health of gig workers based on their job position/ title.

ANOVA
Job Position/Title

	Sum of Squares	*Df*	*Mean Square*	*F*	*Sig.*
Between Groups	13.160	4	3.290	4.703	.001
Within Groups	160.899	230	.700		
Total	174.059	234			

As the P value of F-test is 0.001 which is less than 5% level of significance, so we reject null hypothesis which means there is significant difference between mental health of gig workers based on their job position/ title.

Discussion of Results

The collected data reveals that from 235 gig workers 148 are males & 87 are females from the population. It was found that a moderate number of gig workers in the IT sector fall within the age range of 26-35 years. Analysis of the data indicates that a higher proportion of gig workers in the IT sector hold graduate degrees, moderate number of gig workers have one year of experience, while a higher number have 1-3 years of experience in the IT sector. A significant portion of gig workers in the IT sector hold positions as software engineers. The findings show that a higher number of gig workers experience techno-stress in the workplace. In fact data indicates that a higher number of gig workers have experienced symptoms of anxiousness & worried which is related to depression at work as a mental health indicator & considerable number of gig workers found having low-quality sleep during workdays. It was observed that a higher percentage of gig workers experienced physical health complaints. This is also a result to higher the job responsibility or title higher the techno-stress amongst the gig workers. Furthermore, Information overload, constant connectivity, unclear expectation, creates a feeling to leave the current job but gig workers reacts positively to it. Likewise, a significant number of gig workers perceive techno-stress positively impacting employee performance & productivity.

CONCLUSION

Thus this study reveals that techno-stress has a significant negative impact on gig workers wellbeing in the IT sector. As higher number of gig workers feel techno-stress but it could not be the reason for leaving their current job due to the type of work structure they are employed. It manifests in various forms, including increased stress levels, decreased job interest, burnout, mental health challenges that affects overall performance of the respondents. Addressing techno-stress

requires proactive measures from organizations to support workers in managing technology effectively, promoting work-life balance, and fostering a culture of wellbeing. Failure to address techno-stress not only affects individual workers' health and job satisfaction but also has broader implications for organizational performance and success in the IT sector. Therefore, prioritizing strategies to mitigate techno-stress is essential for promoting a healthy and productive workforce in the digital age.

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