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Workplace Telepressure and Cognitive Load in MSME Online Entrepreneurs: A Relationship Study

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ABSTRACT

With the increased use of digital platforms, there has the demands of availability 24/7 availability, especially amongst the owners of Micro, Small and Medium Enterprises (MSME) online businesses, with the increased integration of digital communication technologies in business operations. The current research analysed the association between telepressure in the workplace and cognitive load in MSME online business owners. A qualitative and cross-sectional correlational design was used. The sample comprised 50 MSME online owners whose ages fell between 24 and 29 years; this was done by use of convenience sampling. The measurement of workplace pressures was carried out on the Workplace Telepressure Scale, and the cognitive load was measured by the NASA Task Load Index (NASA-TLX). The correlation analysis of Pearson indicated that overall cognitive load was not significantly related to workplace telepressure ($r = –.074$, $p = .694$). Nevertheless, there were positive correlations between telepressure and temporal demand ($r = .575$, $p < .001$) and effort ($r = .475$, $p < .001$), which showed significant correlations between telepressure and time pressure and effort in the performance of a task. There were no significant relationships between telepressure and mental demand, physical demand, or performance, and the association with frustration was close to significant. The t-tests of independent samples showed that there was a significant gender difference in cognitive load but not in telepressure. The results indicate that telepressure at work is mostly a time-dependent and motivational stressor and not a generalised cognitive overload. The paper is a contribution to the expanding body of literature on digital work stress by clarifying the subtle effect of telepressure on particular aspects of workload among online proprietors of companies.

*Keyword***:** Workplace Telepressure; Cognitive Load; MSME Online Owners; Digital Communication; Temporal Demand; Effort; NASA-TLX; Technostress.

1. INTRODUCTION

With the increasing use of digital platforms, online communication has become a regular part of work life, especially for MSME owners who manage their businesses online. Online business owners frequently receive work-related messages through WhatsApp, emails, social media platforms, and e-commerce applications. With the increased use of technology, the ease of work has peaked (Ragu-Nathan et al., 2008) as well as resulted in increased workload (Chesley, 2010). While these messages help in quick communication, they also create pressure to respond immediately and stay constantly connected.

This constant flow of text-based communication can interrupt work, increase mental effort, and make it difficult for business owners to focus on important tasks. A study by Lanzolla et al. (2020) stated that the potential cognitive and psychological burdens caused by digital work remain unexplored. One such digital era burden is workplace telepressure - a psychological state characterised by the urge to immediately respond to messages via ICT (information and communication technologies) (Barber & Santuzzi, 2015).

Recently, telepressure at work has been empirically associated with decreased psychological isolation (Barber et al. 2024) and increased work-family conflict (Aman-Ullah et al.,2025), and increases in physiological stress indicators such as decreased cardiac vagal tone and hormonal imbalances (Semaan et al. 2023). These results support the hypothesis that professional telepressure is not just a time management problem, but a deeper cognitive constraint that can have a significant impact on creative performance.

MSME online owners often handle multiple roles, such as managing customers, suppliers, marketing, and finances on their own. Due to this, they are more likely to experience pressure from continuous text communication. The reasons MSME members in Bogor Regency prefer to use WhatsApp Story for marketing are that it is simple, practical, fast, low-cost and helps increase turnover (Pratiwi A., 2023). However, limited research has focused on how workplace text pressure affects the cognitive load of MSME online business owners. Therefore, the present study aims to examine the relationship between workplace text pressure and cognitive load among MSME online owners.

2. LITERATURE REVIEW

Employees with higher off-hours availability requirements can be expected to be available through at least one communication channel (e.g., instant messaging services) outside of working hours. This organisational framework influences boundary management by encouraging employees to create more permeable and flexible boundaries for behaviours that allow them to meet expectations (Ashforth et al., 2000), such as always having a work smartphone with them. Empirical support is based on a study by Belkin et al. (2020), which found that employees who are expected to monitor email outside of work hours are more likely to spend time on email outside of work hours. Additionally, employees who feel the need to always be available to complete their work tasks adopt behaviours that disrupt psychological detachment (Derks et al., 2014; Thörel et al., 2021). Furthermore, research has also shown that the very pressure to be accessible makes employees more likely to think about possible work interactions using ICT, which harms post-work recovery and psychological disengagement (Belkin et al., 2020; Dettmers et al., 2016; Thörel et al., 2021).

In a 5-day diary study, Cambier et al. (Cambier et al., 2019) found a significant negative correlation between leisure time WTP and leisure time psychological separation, but not within subjects. Inability to mentally detach from work, either during work performance, during breaks, before or after work, or a combination of both (Braukmann J et al., 2017). Digital tools promote productivity and flexibility, but they also add stress, pressure, and cognitive overload. Long-term screen time is linked to sleep disorders and mental tiredness (Bondanini G. et al., 2025). In a study by Majumdar, P. et al (2020) measured that increased screen time results in more mental fatigue in remote workers. In an experimental study by Roberts, J.K. et al (2021) stated that constant connectivity increases cognitive load compared to face-to-face communication. Similarly, Chanana, N. et al (2021) examined how hyper-connectivity can reduce engagement due to cognitive overload. A study by Galanti et al. (2021) shows that excessive use of digital tools, such as video conferencing and instant messaging platforms, causes the risk of cognitive overload, digital fatigue, and social isolation. Evans, H. et al. (2023) researched that virtual backgrounds have the potential to reduce visual fatigue but can cause cognitive strain.

3. RESEARCH METHODOLOGY

Research Design

To analyse the relationship existing between text pressure at work and cognitive load among MSME owners of online businesses, the current research uses a quantitative and cross-sectional research design. It is assumed that a quantitative method will be suitable because it provides a possibility to systematically measure the variables and examine their correlation statistically. The research is both descriptive and correlational in nature and seeks to know the degree of work text pressure on the owners of MSMEs and the relationship between this and their perceived cognitive load at work.

Population and Sample

The study target will be owners of Micro, Small, and Medium Enterprises (MSMEs) involved in the online business operations that include e-commerce sellers, digital service providers, social media-based entrepreneurs, and business owners who depend on platforms. These people have become used to digital communication involving the use of text-based communication regularly i.e. daily work: WhatsApp, email and instant messaging applications and platform notifications.

The non-probability convenience sampling method was applied to select a sample size of 50 participants based on convenience and willingness to take part.

Inclusion Criteria

Participants included in the study met the following conditions:

- Must be an owner or co-owner of an MSME
- Must be actively involved in running an online business
- Must regularly use text-based digital communication (WhatsApp, emails, messages, platform notifications) for work
- Must be between the age group of 18–60 years
- Must be willing to participate voluntarily in the study

Exclusion Criteria

Participants were excluded from the study if they met any of the following conditions:

- Individuals who are not MSME owners (employees only)
- Business owners who do not use online or digital platforms for work
- Individuals involved only in traditional businesses
- Incomplete or improperly filled questionnaires

Variables of the Study

- Independent Variable: Workplace Text Pressure
- Dependent Variable: Cognitive Load

Operational Definitions

- Workplace text pressure: Workplace text pressure refers to the perceived stress and pressure experienced by MSME online owners due to frequent work-related text messages, notifications, and expectations of quick responses during work hours.
- Cognitive Load: Cognitive load refers to the amount of mental effort required by MSME online owners to process work-related information, manage tasks, and make decisions while handling their online business activities.
- MSME Online Owners: MSME online owners are individuals who own or manage micro, small, or medium enterprises and conduct their business operations primarily through online platforms such as e-commerce websites, social media, or digital service platforms.

Tools for Data Collection

Data were collected using standardised self-report questionnaires:

1. Workplace Telepressure Scale

Workplace Telepressure Scale is a psychological scale which is designed to evaluate the psychological inclination and obsession of the employees in responding instantly to work related electronic messages i.e. emails, messages or calls. Telepressure echoes the sense of duty as it is an internalised feeling of duty to be responsive and continuously available instead of the amount of communication that one receives. The scale includes the influence of digital connectivity in terms of stress, the inability to psychologically detach, and work-related inability to recover.

The scale contains 6 items with 5-point Likert scale, i.e., 1 (Strongly disagree) to 5 (Strongly agree). The statements that are to be considered as a sample are statements like; I have a great desire to reply to work-related messages as soon as possible, and it is hard to relax unless I have answered a work message. The higher the scores, the more telepressure there is at the workplace.

It is scored by summing or averaging the responses to items to get a total score in telepressure, and it does not necessitate reverse scoring. The scale has been found to be well internally consistent with reported Cronbach alpha being mostly above 0.85 which shows a high level of reliability. Its construct and criterion validity have also been determined in previous studies that reported a positive correlation with stress, emotional exhaustion, work-life conflict, and diminished psychological detachment to work.

The Workplace Telepressure Scale is a popular instrument in organisational and occupational psychology studies to explore how digital communication requirements affect the well-being of employees and the cognitive load.

2. Task Load Index (NASA-TLX)

The NASA Task Load Index (NASA-TLX) is a widely used subjective workload assessment tool developed by the National Aeronautics and Space Administration (NASA) to evaluate the perceived cognitive, physical, and temporal demands of a task. It captures how demanding a task feels to a person across six distinct subscales. The participants score each upon a scale (in a lot of cases 0100), and these scores could be added up to create a weighted or unweighted total workload score as required by the research.

Six Dimensions of the NASA-TLX

- Mental Demand: How much cognitive and decision-making effort does the task requires.
- Physical Demand: How physically strenuous the task feels.
- Temporal Demand: The pressure or speed in which the task is done.
- Performance: The degree of perceived success of the participants in meeting the task goals (usually in reverse score such that, the lower the perceived performance, the higher the workload).
- Effort: The extent of effort (both mental and physical) that the individual had to work.

- Frustration Level: Feeling of irritation, stress or frustration in carrying out the task.
- NASA-TLX has been appreciated due to its sensitivity to workload variation across various tasks and populations (i.e. aviation, healthcare, human computer interaction), and its assistance in helping researchers to comprehend the contribution of task characteristics to subjective overall load.

Procedure

The data were gathered using an online questionnaire, which was conducted via Google Forms. The respondents were approached in the professional network and online business platforms, as well as social media that are pertinent to the MSME owners. The purpose of the study was explained to the respondents and the respondents were assured of confidentiality and anonymity before the study. The study was voluntary, and informed consent was taken electronically.

The respondents were told to be honest with their answers with regard to their general work experiences. The questionnaire took about 1015 minutes. The total number of participants who had completed the form was 146, with only 50 out of them being eligible according to the inclusion and exclusion criteria.

Ethical Considerations

The study was conducted with ethical principles being observed. No personally identifiable information was gathered. The participants were also told that only academic purposes were going to utilise their responses, and that they were at liberty to leave the study at any point. The information was stored safely and could be accessed by the researcher only.

Statistical Analysis

Statistical software like JAPS was used to analyse the collected data. The demographic variables and the study measures were summarised with the help of descriptive statistics (mean, standard deviation, frequency, and percentage). The correlation analysis used by Pearson was used to test how the workplace text pressure correlates with cognitive load. The difference between the cognitive load and text pressure at work place between males and females was analysed with a t-test.

Objectives

- To investigate the correlation between cognitive load and telepressure at work.
- To examine the correlation between telepressure at work and cognitive load and its dimensions.
- To examine the distinction between the cognitive load of males and females.
- In order to examine the workplace telepressure of males and females.

Hypotheses

- A positive correlation will exist between telepressure at work and cognitive load.
- A positive association will exist between telepressure at work place and cognitive load and its dimensions.
- The cognitive load of males and females will be vastly different.
- The difference between the workplace telepressure of males and females will differ considerably.

4. RESULTS

Descriptive Statistics

The last sample group was 50 individuals (valid responses 50). The age of the sample was between 24 and 29 years. The median workload rating was 6.96 (SD = 1.25), and the median telepressure rating was 3.59 (SD = 0.44). Mental demand scores, physical demand scores, temporal demand scores, performance scores, effort scores and frustration scores were in the range of 3 to 10 and showed variability in perceived task demands and strain.

	Age	load	telepressure	mental	physical	temporal	performance	effort	frustation
Valid	50	50	50	50	50	50	50	50	50
Missing	119	119	119	119	119	119	119	119	119
Mean		6.963	3.593						
Std. Deviation		1.254	0.438						
Minimum	24	5.000	3.000	3	3	3	3	4	4
Maximum	29	8.500	4.330	10	10	9	10	10	10

Table 1: Descriptive Statistics
Source: Author Compiled

Hypothesis 1: A positive correlation will exist between telepressure at work and cognitive load. The correlation analysis by Pearson revealed that overall cognitive load had no significant correlation with telepressure at work (r = -0.074, p =.694). Thus, Hypothesis 1 was dismissed. On the contrary, the global cognitive load did not have a positive relationship with telepressure.

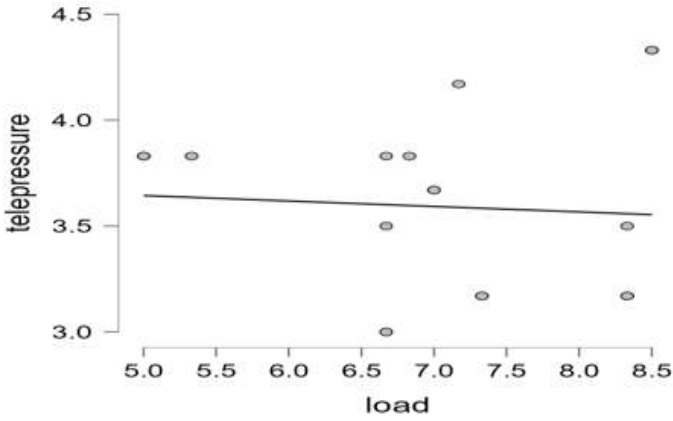

Figure 1: Scatter Plots (Load v/s telepressure)
Source: Author Compiled

Hypothesis 2: A positive association will exist between telepressure at work place and cognitive load and its dimensions.

Although telepressure did not have any significant effect on the overall cognitive load, there was partial support at the dimensional level. Telepressure was positively correlated with temporal demand (r =.575, p <.001) and effort (r =.475, p <.001). These results indicate that people who reported a greater telepressure also reported that they perceived time pressure and more effort was used. But telepressure did not have a significant relationship with:

Table 2: Negative Relation Telepressure
Source: Author Compiled

The relationship with frustration approached significance (r = .224, p = .059) but did not reach statistical significance. This way, the Hypothesis 2 was partially accepted, as telepressure had a specific correlation with definite dimensions of cognitive load (especially with the temporal demand and effort), but not with everything.

Hypothesis 3: The male and female differences in cognitive load will be very high.

An independent samples t-test was used to dispel gender differences in cognitive load. The findings showed that there was a significant difference between males and females in cognitive load,

t (48) = 3.592, p <.001.

Thus, Hypothesis 3 is Accepted.

It is a sign that there is a substantial difference between male and female perceived cognitive load.

Hypothesis 4: Male-female disparity in telepressure at the workplace will be utterly different.

The t-test was used to examine gender differences in telepressure at the workplace using an independent samples t-test. The findings indicated that there was no statistically significant difference in males and females, t (48) = 0.992, p = .326.

Hypothesis 4 is, therefore, Rejected.

This implicates that there is no significant gender difference in telepressure at the workplace in the current sample.

5. DISCUSSION

The current paper has investigated the connection between workplace telepressure and cognitive load, and the dimensions within them, and the gender differences in both constructs.

Against Hypothesis 1, telepressure did not have a significant effect on overall cognitive load. This indicates the possibility that telepressure does not lead to the generalisation of increased cognitive burden. Rather, it seems to have more specific and domain-based impacts.

As per Hypothesis 2, there was a significant relationship between telepressure and temporal demand, as well as effort. These results indicate that telepressure is closely related to the perception of the urgency and the necessity to spend more efforts to match the communication expectations. Telepressure can thus be a more time-based and motivational strain, and not a general cognitive overload phenomenon.

Surprisingly, mental demand did not have a significant relationship with telepressure. It means that perceived task difficulty and cognitive processing difficulty may not be necessarily higher because of the pressure of responding fast to work messages. Rather, it seems to increase time strain and perceived effort.

In respect to Hypotheses 3 and 4, the significantly different differences between the genders were in the cognitive load and not in the telepressure. This could suggest that although men and women perceive the task demands in different ways, the psychological stress on the urgency of responding to communication at work is rather equal between the genders. It is possible that telepressure is also influenced more by organisational culture and communication norms than by gender.

On the whole, the results indicate that telepressure in the workplace is a delicate construct that selectively impacts some of the dimensions of cognitive load, especially dimensions dealing with time pressure and effort.

6. CONCLUSION

The results of the study indicate that the telepressure at work is not linked with the total cognitive load, but it is closely connected with the temporal demand and work. Also, the differences in genders were observed in

cognitive load and not in telepressure. The findings of these studies indicate that perceived urgency, and not generalised cognitive overload, is the main cause of telepressure.

7. LIMITATIONS

- The study size (N = 50) is not sufficient to statistically power and generalise.
- The research was based on self-report measures, which enhances the risk of common method bias.
- The cross-sectional design does not allow cause and effect.
- The demographic variability was also restricted because the age range it covered was rather small (24-29 years).
- One-tailed tests were applied that can sometimes affect the meaning of the significance.

8. IMPLICATIONS

Theoretical Implications

The results add to the literature on telepressure by indicating that temporal and effort dimensions of cognitive load are more significantly correlated with telepressure than global cognitive load. This narrows down the theoretical concept of telepressure as a time-based psychological pressure as opposed to a general cognitive load.

Practical Implications

The organisations can alleviate the strain of telepressure by:

- Establishing clear communication response-time norms
- Reducing after-hours communication expectations
- Promoting digital boundary management

The interventions are to take the type of perceived urgency to control, instead of merely lessening the load on work.

9. SUGGESTIONS FOR FURTHER RESEARCH

- Longitudinal designs are used to study causality.

- Test the mediating variables, like burnout or stress.
- Consider the moderating variables (e.g., personality traits (e.g., conscientiousness).
- Examine industry-specific differences.
- Include larger and more diverse samples

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