

Social Support Systems and Techno-stress as Predictors of Emotional Well-being among University Students in Web-based Education in Bihar

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ABSTRACT

The present study investigated the role of social support systems and techno-stress in the emotional well-being of students enrolled in web-based university education in Bihar. In today's time, online learning is becoming very common, but for many students it is not always smooth because of digital pressure, limited resources, and less real-life interaction. The study was conducted on a sample of 400 university students selected from different public universities of Bihar through purposive sampling, including 214 boys and 186 girls. The mean age of boys was 24.3 years ($SD = 2.11$) and girls was 23.5 years ($SD = 1.98$). Tools used were a 6-item Social Support Questionnaire (Sarason et al., 1983), the Technostress Scale adapted from Wang et al. ($\alpha = 0.921$), and Mental Health Continuum-Short Form (MHC-SF) based on Keyes' framework (2002). Results showed that social support had a significant positive relationship with emotional well-being ($r = 0.42$, $p < .001$), while techno-stress had a significant negative relationship ($r = -0.46$, $p < .001$). Regression analysis revealed that both variables significantly predicted emotional well-being ($R^2 = 0.34$). The study highlights that emotional health in online education depends not only on academics, but also on human support and technology stress.

Keywords: Social support system, techno-stress, emotional well-being, and web-based education

INTRODUCTION AND REVIEW OF LITERATURE

Education in the present time is not just about books and classrooms, it is also about screens, internet signals, apps, and online submissions. In many parts of India, especially in states like Bihar, web-based university education has become an important mode of learning, whether by choice or by situation. In the last few years, students have increasingly depended on mobile phones, laptops, online classes, Google forms, digital libraries, and recorded lectures for continuing their academic process. But along with this development, students are also facing new type of stress and emotional issues which is not always visible. Sometimes they look normal from outside, but inside they feel anxious, frustrated, and mentally tired. For many university students in Bihar, online education is both a chance and challenge. It provides flexibility, time saving, and access to more resources, but it also comes with high pressure of being "always available", network problems, lack of face-to-face interaction, and disturbances at home. In such conditions, emotional well-being becomes very important because emotional health directly affects motivation, concentration, learning interest and even life satisfaction. Emotional well-being refers to the general state where an individual feels stable, hopeful, less stressed, and capable of managing daily emotions (Keyes, 2002). However, web-based learning sometimes creates emotional imbalance due to less personal connect and more technological dependency.

One major factor which influences emotional well-being of students is **social support system**. Social support means the help and care that a person receives from family, friends, teachers, peers, and society during difficult times. Social support acts like a protective wall which reduces stress and gives emotional strength. According to Cohen and Wills (1985), social support works as a buffer against stressful life events and improves psychological adjustment. For students who are studying in online mode, this support is even more crucial because online education can reduce the feeling of belongingness which usually comes from physical campus environment. Sometimes it is not only about giving advice or money support, even small things like someone listening, encouraging, or understanding the student's struggle, also gives emotional comfort. In Bihar, the family systems are often strong and connected, but still there are many students who feel isolated in online studies because family members may not understand digital academic burden. Like parents might say "you are just sitting with phone whole day", without realizing they are attending classes, preparing assignments, and reading notes. This mismatch of understanding can indirectly reduce perceived social support and create emotional strain.

In contrast, students who have supportive parents, friends or teacher guidance are more likely to cope with online learning challenges. Studies suggest that perceived social support is associated with better mental health outcomes, lower depression, and better emotional regulation (Zimet et al., 1988). Peer support also plays an important role in academic stress management because friends provide emotional closeness and academic help both. But online education can reduce peer bonding because casual interactions, group studies and campus discussions becomes less naturally happening.

Now another important concept that is creating problem in students' emotional well-being is **techno-stress**. Techno-stress refers to the stress that individuals experience due to use of technology and the demands created by technological environment. The term techno-stress was originally introduced by Brod (1984) who described it as a modern disease of adaptation caused by inability to cope with new computer technologies. In present era, techno-stress is not only for office workers or IT people, it is also clearly seen in students because they are expected to remain updated and tech-ready all time.

Techno-stress can occur due to many reasons like slow internet, lack of proper devices, constant notifications, fear of missing online submissions, unfamiliar platforms, and continuous screen exposure. Technostress creators include techno-overload (too much information and work), techno-invasion (always connected), techno-complexity (difficulty in using tools), techno-insecurity (fear of losing performance) and techno-uncertainty (frequent changes in technology) (Tarafdar et al., 2007). In Bihar, these factors can become more intense because of limited digital infrastructure in many regions and financial limitations in some families. Even if students have smartphone, the quality of device or internet is not always sufficient for higher education demands.

Sometimes students don't openly say "I am stressed due to online study", they just feel irritated, tired, headaches, low mood, and mental confusion. Such emotional symptoms are often related to continuous technological burden and academic pressure. Research indicates that increased technostress is linked with burnout, anxiety and reduced well-being (Ragu-Nathan et al., 2008). This is why it becomes important to understand the role of technostress in students' emotional well-being, especially when education is heavily dependent on web-based systems.

What is interesting is that social support and techno-stress both can interact with each other. If a student is facing high techno-stress, but they have strong support from family, teachers and friends, then the negative impact may reduce. Social support can act as a coping resource and help students deal with technological frustrations. Lazarus and Folkman (1984) stated in their stress and coping theory that stress depends on how individuals appraise the situation and the resources they have for coping. Here, social support is an important resource which changes how students view and manage online academic stress. However, if students have low support and high techno-stress, then emotional well-being can decline seriously. They may feel helpless, lonely, and even depressed. Online education without proper support structure may feel like self-struggle, and this can lead to emotional exhaustion. Some studies also show that lack of social connection in online learning environments contributes to stress and reduced satisfaction with academic life (Tinto, 1993). In web-based education, students often miss campus environment where they can talk to teachers after class, sit with friends, or attend activities which refreshes the mind. Another thing is that Bihar's socio-cultural environment has unique features. Many students are first-generation learners, and they face additional pressure from family expectations, financial burden, and limited resources. For them, web-based learning can be emotionally challenging because education becomes not only about learning but also about adjusting with technology. It is not always easy to study from home where disturbance is more, and there may be responsibilities at home also. So emotional well-being gets affected due to combined pressure of academics, home environment, and technology stress. Additionally, emotional well-being includes both positive and negative emotions. Students may experience positive feelings like hope, achievement and confidence, but also negative feelings like fear, irritation, loneliness and self-doubt. Positive psychology suggests that emotional well-being is not only absence of depression, but presence of positive functioning and life meaning (Ryff, 1989). Therefore, in web-based university education, the goal should not be only reducing stress but also promoting positive emotional health and satisfaction among students.

The relationship between social support and emotional well-being is well established in psychological literature. People with high social support generally show better resilience and less psychological distress (Cohen, 2004). But in online education, sometimes students remain connected digitally but emotionally disconnected. Like they chat in WhatsApp groups, but still they feel alone, because real emotional support is missing. This shows that social support is not only physical presence but also quality of relationships and emotional availability. Similarly, technostress is now becoming a normal part of academic life, but that does not mean it should be ignored. Students are continuously exposed to screen and digital tasks, which leads to fatigue and sometimes sleep problems. Sleep is also related with emotional well-being. When students study late night due to internet availability or submission pressure, it disturbs routine and increases irritability. Although online education is helpful, but it can create imbalance in lifestyle and increase stress if not managed properly. In Bihar context, the research on techno-stress and emotional well-being in web-based university education is still limited and not deeply explored. Most studies focus on general e-learning satisfaction or academic performance, but emotional impacts and role of support systems needs more attention. This gap is important because students' emotional well-being affects learning outcomes and overall development. If students emotionally suffer, they may show low motivation, absenteeism in online classes, and even drop-out intention. Therefore, understanding how techno-stress affects emotional well-being, and how social support buffers it, becomes a crucial research need.

Thus, the present study focuses on exploring the emotional well-being of students in Bihar who are pursuing web-based university education, with special reference to social support systems and techno-stress. It is expected that social support will show a positive relationship with emotional well-being, while techno-stress will show a negative association. Also, social support may reduce the harmful effects of techno-stress by providing emotional strength and coping resources. This study may contribute to better awareness among educators, parents and policy makers regarding the emotional needs of students in online education environment.

From the above discussion, it is clear that web-based university education has created both learning opportunities and emotional challenges for students. In Bihar, where technological limitations and social factors are strongly present, it becomes necessary to examine how **social support systems** and **techno-stress** together influence students' **emotional well-being**. Therefore, the present study is planned with the following objectives and hypotheses.

Objectives

1. To examine the relationship between social support systems and emotional well-being among students in web-based university education in Bihar.
2. To examine the relationship between techno-stress and emotional well-being among students in web-based university education in Bihar.
3. To study the combined contribution of social support systems and techno-stress in predicting the emotional well-being of students in Bihar.

Hypotheses

H1: Social support systems will show a significant positive relationship with emotional well-being among students in web-based university education in Bihar.

H2: Techno-stress will show a significant negative relationship with emotional well-being among students in web-based university education in Bihar.

H3: Social support systems and techno-stress will significantly predict emotional well-being of students in web-based university education in Bihar.

RESEARCH METHODOLOGY

Research Design

The present study used a **quantitative correlational research design** to examine the role of **social support systems** and **techno-stress** in the **emotional well-being** of students enrolled in web-based university education in Bihar. Since the study aimed to understand relationships and prediction patterns, the design was considered suitable for the given objectives.

Sample

The sample of the study consisted of **400 university students** selected from **different public universities of Bihar** through **purposive sampling technique**. The participants were those students who were actively engaged in **web-based or technology-enhanced learning** as part of their university education.

Out of the total sample, **214 were boys** and the remaining **186 were girls**. The **mean age of boys was 24.3 years** with corresponding **standard deviation (SD = 2.11)**, and the **mean age of girls was 23.5 years** with corresponding **SD (1.98)**. The sample represented a mix of students belonging to different academic streams and university backgrounds, which helped in making the study more meaningful within the Bihar context.

Instruments Used

To collect data, the following standardized tools were used:

A. Social Support Questionnaire (Short Version)

Social support was measured using a **6-item Social Support Questionnaire**, which is a shortened version of the original Social Support Questionnaire developed by **Sarason et al. (1983)**. Each item included a **two-part response pattern**:

- **Part 1:** Participants listed the people who fit the description of the question.
- **Part 2:** Participants indicated their **general satisfaction level** with the support received from those people.

This tool helped in assessing both the **availability of social support** and the **satisfaction with support**, which are important for understanding emotional well-being.

B. Technostress Scale

Techno-stress was assessed using the **Technostress Scale (TS)** adapted from **Wang et al.** This scale consisted of **four items**, such as *"I feel stressed to adapt to technology enhanced learning."* Responses were recorded on a **five-point Likert scale** ranging from **Strongly Disagree to Strongly Agree**. The internal consistency reliability of this scale was high, with a **Cronbach's alpha of 0.921**, showing that the tool was reliable for assessing technostress in students.

C. Mental Health Continuum–Short Form (MHC–SF)

Emotional well-being was measured using the **Mental Health Continuum–Short Form (MHC–SF)** based on the conceptual framework of **Keyes (2002)**. This tool provides a holistic assessment of psychological wellness and covers three major dimensions:

- **Emotional well-being**
- **Psychological well-being**
- **Social well-being**

The MHC–SF was used as it gives a broad and comprehensive picture of overall well-being of students, rather than focusing only on mental illness symptoms.

Statistical Tools Used

After data collection, the responses were coded and analysed using appropriate statistical techniques. **Descriptive statistics** such as mean and standard deviation were used to summarise the sample characteristics and overall trends in the variables. To examine the relationship between **social support**, **techno-stress**, and **emotional well-being**, **Pearson's product moment correlation** was applied. Further, to understand the combined predictive role of **social support systems** and **techno-stress** on emotional well-being, **multiple regression analysis** was used. All analyses were carried out at a suitable level of significance ($p < .05$) to test the hypotheses objectively.

Procedure

The data collection process was conducted after finalizing the objectives, selecting the tools, and preparing the questionnaire format. Permission and basic approvals were taken from concerned authorities wherever required. The students were approached through their respective universities and were selected based on the purposive criteria, i.e., they were engaged in online or web-based learning.

The participants were first informed about the nature and purpose of the study, and they were assured that their responses would remain confidential and would be used only for academic research. After taking their consent, the questionnaires were administered to the students. Clear instructions were given to ensure that students understood how to respond, especially in the Social Support Questionnaire where both listing of people and satisfaction rating were required.

The participants completed the **Social Support Questionnaire**, followed by the **Technostress Scale**, and finally the **MHC–SF**. Sufficient time was provided to all students for responding honestly and comfortably. After collection, the responses were checked for completeness. Incomplete and ambiguous responses were not included for final analysis. The obtained data was then coded and prepared for statistical analysis to examine relationships and predictions among the study variables.

RESULT

After collecting data from 400 university students of public universities in Bihar, the responses were coded and analysed using descriptive and inferential statistics. The present section reports the results for each hypothesis separately to

understand the relationship and predictive contribution of **social support systems** and **techno-stress** in determining the **emotional well-being** of students in web-based university education.

Table 1

Correlation of Social Support Systems and Techno-stress with Emotional Well-being (N = 400)

Variables	N	r	p	Result
Social Support Systems & Emotional Well-being	400	0.42	< .001	Significant Positive Relationship
Techno-stress & Emotional Well-being	400	-0.46	< .001	Significant Negative Relationship

Table 2

Multiple Regression Analysis showing Prediction of Emotional Well-being (N = 400)
(Dependent Variable: Emotional Well-being)

Predictor Variables	B	SE B	β	t	p
Social Support Systems	0.31	0.05	0.34	6.20	< .001
Techno-stress	-0.38	0.06	-0.39	-6.75	< .001

Table 3

Model Summary

R	R ²	Adjusted R ²	F	p
0.58	0.34	0.33	102.40	< .001

DISCUSSION AND INTERPRETATION

The first hypothesis stated that social support systems would show a significant positive relationship with emotional well-being. The results supported this hypothesis, as social support showed a moderate positive and significant correlation with emotional well-being ($r = 0.42$, $p < .001$). This means that students who reported better support from family, friends, teachers or close people also reported higher emotional wellness, stability and positive psychological functioning.

This finding is strongly supported by the buffering hypothesis of social support, which explains that support helps individuals cope better during stressful situations and reduces the negative emotional impact of life difficulties (Cohen & Wills, 1985). When students are doing web-based learning, they often face confusion, uncertainty and mental fatigue, and in such conditions even small emotional backing makes a big difference. Many students in Bihar study from home environments where family responsibilities and distractions are high; therefore emotional support becomes almost like a “safety net” for them.

The result is also consistent with the way perceived support improves mental health outcomes. Earlier studies have shown that individuals with higher perceived social support usually experience lower psychological distress and better adjustment (Cohen, 2004). Similarly, the Social Support Questionnaire used in the present study is designed to capture both the availability and satisfaction of support (Sarason et al., 1983), and the positive relationship found here suggests that students who were satisfied with their support systems felt emotionally stronger.

In online education, one major issue is that students may feel alone even while being digitally connected. The absence of physical peer interaction can reduce belongingness and emotional warmth. Therefore, support from family and friends plays an even stronger role in the online learning context. In this sense, the results align with student retention and engagement theories also, which highlight that social connection and integration are essential for student success and emotional adjustment (Tinto, 1993). So, the present findings clearly indicate that social support is not a small factor—it is like an emotional backbone for students managing web-based education.

The second hypothesis expected a significant negative relationship between techno-stress and emotional well-being. The results supported this as techno-stress had a moderate negative and significant correlation with emotional well-being ($r = -0.46$, $p < .001$). This means that higher techno-stress was linked with lower emotional wellness among students.

This finding is quite practical and believable in the Bihar setting because students often face problems like unstable internet, device heating, limited data packs, and constant pressure to stay updated with online learning platforms. The concept of techno-stress was initially discussed as a modern stress problem resulting from difficulties in coping with new technologies (Brod, 1984). In recent times, this issue has become more intense as technology is no longer optional, it has become a “compulsory requirement” for education.

The results are consistent with technostress research which explains that technology can create overload, invasion, complexity and uncertainty, eventually leading to emotional fatigue and reduced well-being (Tarafdar et al., 2007). Students may experience stress not because they don’t want to learn, but because technology becomes another burden along with studies. For example, if a student is mentally ready to attend class but internet fails, it creates frustration and helplessness, which gradually affects emotional health.

The findings also match with studies suggesting that techno-stress is linked with burnout and psychological strain (Ragu-Nathan et al., 2008). This is important because university students are already under pressure regarding future career, exams, and competition. When technological stress is added into that, it can disturb emotional balance. In online learning, students may feel “trapped” in continuous screen usage, and this creates tiredness, low mood and irritability. Many times, such stress does not look serious on surface, but it silently damages motivation and emotional stability.

So overall, the findings of this study clearly show that techno-stress is not just a technical issue, it is also an emotional issue for students, and it reduces their capacity to feel mentally calm and positive.

Hypothesis 3: Combined Prediction of Emotional Well-being (Regression Result)

The third hypothesis stated that social support systems and techno-stress would significantly predict emotional well-being. The regression findings supported this hypothesis. The model was found to be statistically significant ($F = 102.40$, $p < .001$), and the two predictors together explained **34% variance ($R^2 = 0.34$)** in emotional well-being.

This is a strong outcome because in real-life psychological research, explaining even 20–30% variance is considered meaningful, especially when emotional well-being depends on many personal, family, academic and economic factors. The results showed that:

- **Social support positively predicted emotional well-being** ($\beta = 0.34$, $p < .001$)
- **Techno-stress negatively predicted emotional well-being** ($\beta = -0.39$, $p < .001$)

This indicates that even when both variables were considered together, techno-stress remained a strong negative predictor, while social support remained a strong protective factor. This pattern fits well with the **stress and coping framework** which states that stress effects depend on coping resources available to the individual (Lazarus & Folkman, 1984). In this case, social support can be seen as a coping resource that increases emotional strength, while techno-stress can be seen as a demand or pressure that drains emotional energy.

Since emotional well-being was assessed using the Mental Health Continuum–Short Form (MHC–SF), which is grounded in Keyes' concept of flourishing and holistic mental health (Keyes, 2002), the findings suggest that techno-stress reduces not only happiness but also psychological and social wellness. Likewise, social support strengthens the overall mental health continuum by helping students feel connected, valued and emotionally balanced.

It is also important that this study was conducted among students in web-based education in Bihar, where learning environments differ widely. Some students have proper rooms, devices, and peaceful environment, while others face distractions, financial limitations and lack of privacy. So, if a student has high techno-stress and low support, they are likely to experience low emotional well-being. But if they have strong emotional support, they can still manage online education stress better.

In reality, many students in Bihar may be first-generation learners and may not always find academic guidance at home. Therefore, university support services, teacher encouragement, and peer bonding become essential social support channels. The result clearly shows that improving support systems and reducing techno-stress is not only about improving academic performance, it is directly about

SUMMARY

To conclude, the findings of the study showed a clear psychological pattern: **social support systems function as a protective factor**, while **techno-stress functions as a risk factor** for emotional well-being among students in web-based university education. This relationship is supported by earlier theoretical and empirical research on social support and stress processes (Cohen & Wills, 1985; Lazarus & Folkman, 1984). The results also highlight that techno-stress is becoming a serious concern in technology-enhanced learning environments and needs attention for promoting student mental health (Tarafdar et al., 2007; Ragu-Nathan et al., 2008).

Thus, the present study contributes to understanding how emotional well-being of students in Bihar is influenced not only by academic learning, but also by human support and technological burden. It suggests the need for supportive interventions, student counselling, digital training, and a more emotionally sensitive web-based education system so that students can learn with stability and confidence.

IMPLICATIONS

The findings of the present study have important practical implications for students, teachers, universities, and even families in Bihar. Since social support showed a strong positive role in emotional well-being, universities can strengthen peer-support groups, mentoring systems, and teacher-student interaction in online mode so that students do not feel emotionally disconnected (Cohen & Wills, 1985). At the same time, techno-stress emerged as a major negative factor, suggesting that universities should provide orientation programmes for technology-enhanced learning, simplify digital platforms, and offer basic technical help desks for students. Also, counselling cells and emotional well-being awareness sessions can support students in coping with digital overload and stress. Overall, the study highlights that improving emotional well-being in web-based education is not only about “better internet”, but also about building stronger support systems and reducing the psychological burden of technology use (Keyes, 2002; Tarafdar et al., 2007).

LIMITATIONS

Although the study provided meaningful insights, it had certain limitations which should be considered while interpreting the results. First, the study used a purposive sampling method and included only students from public universities of Bihar, so the findings may not fully generalise to private universities or students from other states. Second, the data was collected using self-report questionnaires, and therefore the responses may involve bias such as social desirability or mood-based answering at the time of filling the forms (Sarason et al., 1983). Third, the study design was correlational in nature, so it cannot confirm a cause-and-effect relationship between techno-stress, social support, and emotional well-being. Emotional well-being is also influenced by many other factors like financial stress, personality traits, and family environment, which were not separately controlled in this research (Lazarus & Folkman, 1984).

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