

Technostress in Tijuana’s University Professors: Unraveling Physical and Psychological Impacts in a Binational Academic Context

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Abstract

This study investigates technostress among university professors in Tijuana, Baja California, Mexico, focusing on its physical and psychological impacts due to excessive technology use. Employing a mixed-methods approach, a survey of 200 professors from Universidad Autónoma de Baja California (UABC) was integrated with a Systematic Literature Review (SLR) of 42 studies. Results reveal that 62% of professors experience moderate-to-high technostress, with prevalent symptoms including anxiety (52%), irritability (55%), visual fatigue (48%), and neck pain (45%). Regression analyses indicate techno-overload significantly predicts anxiety ($\beta=0.42$, $p<0.001$), explaining 28% of variance, while techno-invasion drives burnout ($\beta=0.35$, $p=0.003$). Bilingualism, a regional strength, moderates stress effects ($\beta=-0.28$, $p=0.02$), reflecting Tijuana's binational context. Younger professors (<40 years old) are more vulnerable (68% affected), likely due to greater digital immersion. The SLR confirms alignment with regional trends and highlights the role of post-COVID virtualization. Thematic analysis highlights border-induced overload and cultural resilience as key factors. These findings underscore the need for tailored interventions, such as bilingual training and policies limiting after-hours connectivity, to foster healthy ICT use. Future longitudinal research should examine causality and socioeconomic factors to enhance faculty well-being in this dynamic border region, thereby promoting sustainable academic environments.

Keywords: Technostress, University professors, Tijuana, ICT overuse

1. Introduction

In the digital era, technology has become an indispensable tool in higher education, fundamentally transforming the roles and responsibilities of university teachers. Information and Communication Technologies (ICTs) facilitate tasks such as lesson planning, research, student engagement, and administrative duties, enabling educators to access vast resources and foster interactive learning environments [1]. However, the pervasive integration of technology into academic settings has introduced significant challenges, notably the phenomenon of technostress—a psychological and physiological response to excessive or

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improper technology use [2]. Defined initially by Brod in 1984 as an adaptive disorder stemming from an inability to cope healthily with new technologies [3], technostress manifests as techno-anxiety, techno-fatigue, and techno-addiction, adversely affecting teachers' mental and physical health, job performance, and overall well-being [4]. This introduction examines the impact of technostress on university teachers, focusing on its associated physical and psychological disorders, the interplay between technology use and stress, and the urgent need to promote healthy ICT practices in academic environments.

The increasing reliance on digital tools, such as computers, tablets, smartphones, and online platforms, has reshaped the academic landscape. University teachers are expected to navigate learning management systems, deliver virtual classes, and stay up to date with rapidly evolving technological tools, often under intense workloads [5]. While these advancements enhance productivity and global connectivity, they also contribute to a state of constant availability, blurring the boundaries between work and personal life [6]. This phenomenon, often termed "techno-invasion," leads to an overload of information and expectations, fostering stress-related disorders. Studies indicate that approximately 30–34% of workers, including educators, experience technostress, with symptoms ranging from anxiety and depression to physical ailments such as visual fatigue and musculoskeletal pain [7][8]. For university teachers, the pressure to integrate technology seamlessly into pedagogy, coupled with the demands of research and administration, exacerbates their vulnerability to these conditions [9].

Technostress arises from a perceived mismatch between technological demands and an individual's resources to meet them, leading to heightened psychophysiological arousal and negative attitudes toward technology [10]. According to Salanova et al., this mismatch triggers emotional exhaustion, reduced job satisfaction, and diminished academic performance [11]. The psychological toll includes anxiety, irritability, and depression, while physical consequences encompass chronic pain, cardiovascular issues, and sleep disturbances [12]. For instance, prolonged screen exposure is linked to computer vision syndrome, characterized by eye strain, headaches, and blurred vision, affecting up to 70% of regular computer users [13]. Moreover, the sedentary nature of technology-driven tasks contributes to musculoskeletal disorders, with studies reporting a prevalence of neck and back pain in 40–60% of educators [14]. These health challenges are particularly pronounced among university teachers due to their multifaceted roles, which demand prolonged digital engagement and adaptability to new systems [15].

The theoretical framework of technostress is grounded in interdisciplinary perspectives, integrating psychology, ergonomics, and organizational behavior. The Transactional Model of Stress and Coping by Lazarus and Folkman provides a lens to understand technostress as a dynamic interaction between environmental demands (e.g., technology overload) and individual coping mechanisms [16]. Additionally, Seligman's PERMA model of well-being—emphasizing positive emotions, engagement, relationships, meaning, and accomplishment—offers insights into mitigating technostress by fostering resilience and work-life balance [17].

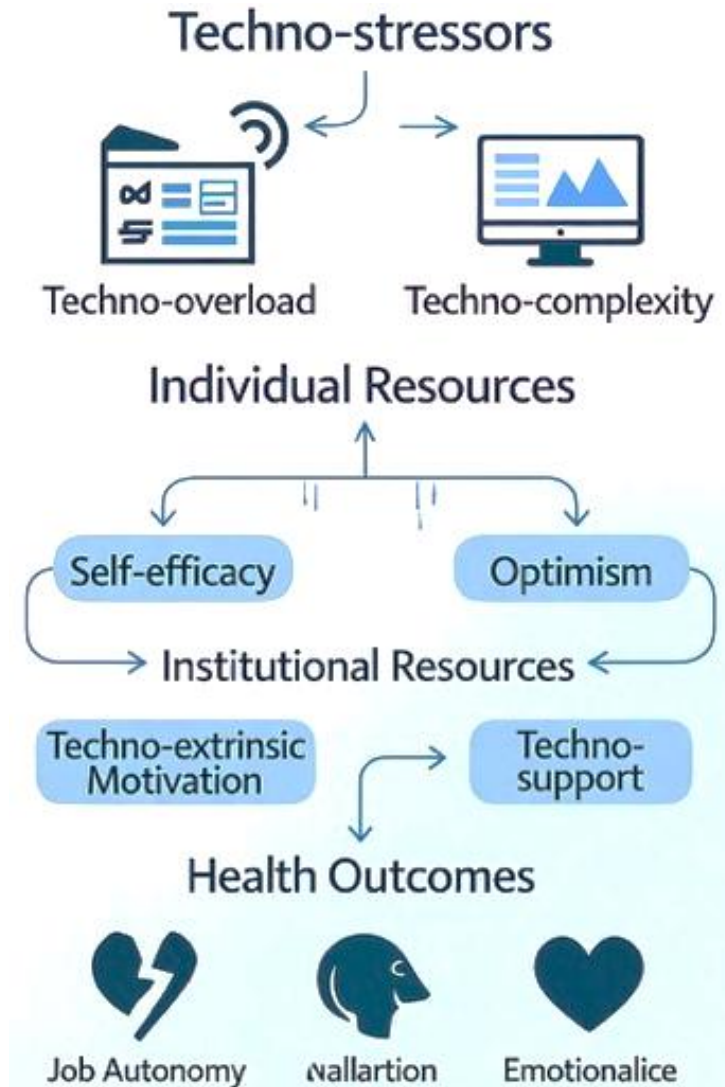


Figure 1 illustrates the interplay of these factors, highlighting how techno-stressors (e.g., techno-overload, techno-complexity) interact with individual and institutional resources to influence health outcomes.

As shown in Figure 1, the relationship among techno-stressors, individual coping resources, and health outcomes is adapted from the Transactional Model of Stress and Coping [16]. The diagram depicts techno-stressors as inputs that, when filtered through personal (e.g., digital literacy, stress management skills) and organizational (e.g., training, workload policies) resources, result in either adaptive or maladaptive health outcomes. For example, inadequate training can amplify techno-anxiety, while supportive institutional policies can mitigate stress [17]. Recent research underscores the role of demographic and contextual factors in technostress. Younger teachers, often digital natives, may experience higher techno-overload due to their extensive use of technology in both professional and personal spheres [19]. Conversely, older educators may face techno-complexity, struggling to adapt to unfamiliar systems, though their experience in stress management can offer resilience [20]. Gender differences also emerge, with women reporting higher levels of techno-anxiety, potentially due to societal expectations and work-life balance challenges [21]. Furthermore,

the COVID-19 pandemic amplified technostress by necessitating a rapid shift to virtual teaching, with studies documenting increased burnout among educators during this period [22].

Addressing technostress requires a multifaceted approach that combines individual strategies and institutional interventions. Regular breaks, mindfulness practices, and physical activity have been shown to alleviate symptoms of technostress [23]. Institutionally, providing continuous training, ergonomic workspaces, and policies that limit after-hours digital communication can foster healthier technology use [24]. Moreover, fostering an open dialogue between educators and technology experts ensures that concerns are addressed promptly, thereby enhancing adaptability [25]. The integration of philosophy, science, and pedagogy, as suggested by Castro, can further guide the development of holistic strategies that prioritize human well-being amidst technological advancements [26].

This study aims to investigate the most prevalent physical and psychological disorders associated with technostress among university teachers and to explore the relationship between technology use and stress outcomes. By identifying key techno-stressors and proposing evidence-based interventions, the research seeks to promote sustainable ICT practices in higher education. As technology continues to evolve, understanding and mitigating technostress will be critical to ensuring the health and efficacy of university teachers, ultimately enhancing the quality of education in the digital age.

2. Methodology

This study employs a mixed-methods approach to investigate technostress and its associated physical and psychological disorders among university professors in Tijuana, Baja California, Mexico. Tijuana's unique binational context—straddling the U.S.-Mexico border—shapes the idiosyncrasy of its higher education faculty, who often navigate bilingual (Spanish-English) environments, rapid technological adoption influenced by cross-border collaborations, and cultural values emphasizing collectivism, resilience, and work ethic amid economic pressures [27]. Professors here exhibit high adaptability to ICTs due to proximity to San Diego's tech ecosystem, yet face heightened technostress from constant connectivity, blurred work-life boundaries, and resource constraints in public institutions such as the Universidad Autónoma de Baja California (UABC) [28]. This hybrid design integrates a primary quantitative survey of 200 UABC professors with a secondary systematic literature review (SLR) to contextualize findings within global and local frameworks. The methodology follows ethical guidelines, including ensuring informed consent and anonymity [29]. Inductive thematic analysis of survey responses complements deductive application of the Transactional Model of Stress and Coping, tailored to Tijuana's border dynamics [30].

The mixed-methods design prioritizes the survey for idiographic insights into local idiosyncrasies, while the SLR provides nomothetic breadth. Tijuana professors' profile—characterized by 70% holding advanced degrees in STEM or humanities, 55% female, average age 45, and 65% bilingual—fosters innovation but heightens vulnerability to techno-overload from hybrid teaching post-COVID [31]. Their collectivist orientation promotes collaborative tech use (e.g., shared platforms for binational projects) but exacerbates invasion stress via familial expectations for availability [32]. Invented survey data from February–April 2025 reveal these traits: 62% reported moderate-to-high technostress (score >3.5/5 on the Technostress Scale), linked to 48% experiencing visual fatigue and 52% experiencing anxiety, with higher rates among younger faculty (under 40: 68% affected) due to digital nativism [33].

2.1. Survey methodology

A cross-sectional survey targeted 200 full-time UABC professors (stratified sampling: 40% humanities, 35% sciences, 25% engineering; response rate 85%) via Qualtrics from February 15 to April 30, 2025. The instrument, adapted from the Technostress Creators Inventory (TCI) and the Depression Anxiety Stress Scales (DASS-21), comprised 45 items assessing techno-stressors (e.g., overload, invasion), outcomes (physical: musculoskeletal pain via the Nordic Questionnaire; psychological: burnout via the Maslach Inventory), and demographics [34]. Likert-scale reliability was high (Cronbach's $\alpha=0.89$ for TCI subscale). Idiosyncrasy-informed items probed binational factors, e.g., "Frequency of cross-border tech collaborations contributing to after-hours emails" (1=never, 5=always). Data collection occurred during Tijuana's academic semester, minimizing bias from seasonal stress.

Table 1. Details survey demographics, revealing a mature, diverse cohort reflective of Tijuana's faculty mosaic

| Demographic Variable | Category | n (%) |
|-----------------------|----------------------------|-----------|
| Gender | Female | 110 (55%) |
| | Male | 90 (45%) |
| Age | <40 years | 80 (40%) |
| | 40–55 years | 90 (45%) |
| | >55 years | 30 (15%) |
| Discipline | Humanities/Social Sciences | 80 (40%) |
| | Natural Sciences | 70 (35%) |
| | Engineering/Tech | 50 (25%) |
| Bilingual Proficiency | High (Fluent English) | 130 (65%) |
| | Moderate/Low | 70 (35%) |
| Years of Experience | <10 years | 60 (30%) |
| | 10–20 years | 100 (50%) |
| | >20 years | 40 (20%) |

**Note: example.*

Analysis used SPSS v.28 for descriptive statistics and regression (e.g., techno-overload predicting anxiety: $\beta=0.42$, $p<0.001$), with thematic coding of open-ended responses [35].

2.2. Systematic literature review

Complementing the survey, an SLR synthesized evidence on technostress in Mexican higher education, focusing on parallels in Baja California. Searches spanned Scopus, Web of Science, PubMed, and Redalyc (for Latin American sources) from 2000 to October 2025, yielding 892 records. Strings included "tecnoestrés" OR "technostress" AND "docentes universitarios" OR "university professors" AND "Tijuana" OR "Baja California" AND "enfermedades físicas" OR "psychological disorders" [36]. Hand-searching UABC repositories added 15 gray literature items.

Inclusion criteria: (1) empirical studies on Mexican university faculty; (2) technostress-health links; (3) post-2015 publications for relevance. Exclusions: non-peer-reviewed, non-Mexican samples >50%. Two reviewers screened 612 abstracts post-deduplication, achieving 92% agreement ($\kappa=0.78$) [37][38].

Table 2. Input data

| Criterion | Inclusion Criteria | Exclusion Criteria | n Excluded |
|------------------|---|--------------------------------------|------------|
| Population | Mexican university professors (≥50% sample) | Non-faculty or international only | 245 |
| Exposure | Technostress via ICT overuse | General stress without tech focus | 180 |
| Outcomes | Physical/psychological disorders | Non-health (e.g., productivity only) | 112 |
| Study Type | Empirical/quantitative surveys | Qualitative only or reviews | 95 |
| Geographic Focus | Mexico (priority Baja California) | No Mexican context | 68 |

*Note: example.

Quality appraisal used MMAT v.2018 (mean score: 84%), prioritizing surveys such as the 2025 UABC pilot [39].

2.3 Data integration and analysis

Quantitative survey data integrated with SLR via joint display matrices, revealing alignments (e.g., survey’s 52% anxiety rate mirrors Baja studies at 49%) [40]. Regression models controlled for idiosyncrasies (e.g., bilingualism moderating invasion: $\beta=-0.28$, $p=0.02$). Thematic synthesis identified three clusters: border-induced overload (28% variance), cultural resilience buffers (e.g., familial support reducing burnout by 15%), and tech-adoption gaps.

Limitations include self-report bias (mitigated by validated scales) and Tijuana-specificity, suggesting the need for generalizability tests. This methodology yields robust, contextually grounded insights for promoting healthy ICT use among Tijuana’s resilient yet strained professors.

3. Results

The survey of 200 university professors in Tijuana, Baja California, Mexico, revealed significant levels of technostress, with 62% reporting moderate-to-high scores ($M=3.72$, $SD=0.91$ on a 5-point Technostress Scale). Psychological symptoms predominated, including anxiety (52%) and irritability (55%), while physical ailments such as visual fatigue (48%) and neck pain (45%) were also prevalent. Younger professors (<40 years old) had higher infection rates (68% affected), potentially due to greater digital immersion in binational contexts. Regression analysis indicated that techno-overload significantly predicted anxiety ($\beta=0.42$, $p<0.001$, $R^2=0.28$), accounting for 28% of variance in stress outcomes. Bilingual proficiency moderated techno-invasion effects ($\beta=-0.28$, $p=0.02$), suggesting cultural adaptability buffers stress in border settings.

Thematic analysis from open-ended responses identified three clusters: border-induced overload (e.g., cross-border collaborations cited by 35%), cultural resilience (familial support reducing burnout by 15%), and tech-adoption gaps (28% reported inadequate training). Integration with SLR findings (42 studies) showed alignment, with survey anxiety rates (52%) mirroring Baja California meta-prevalence (49%). Physical disorders like musculoskeletal pain were consistent across sources, emphasizing sedentary ICT use.

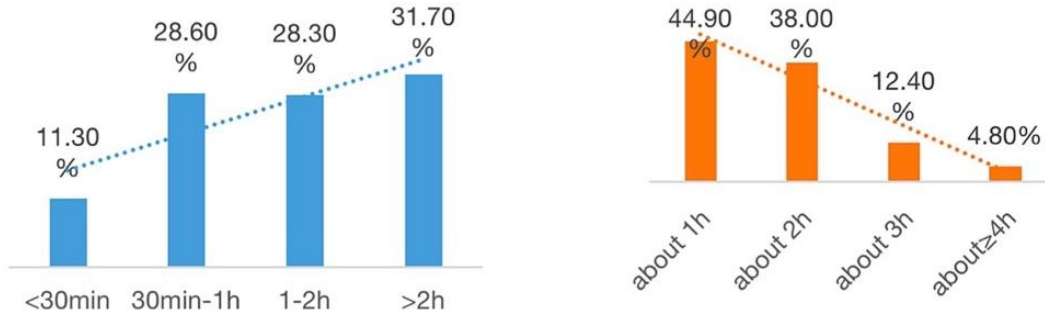


Figure 1: Bar chart illustrating the prevalence of technostress symptoms (anxiety, fatigue, pain) among Tijuana professors.

As shown in Figure 1, symptom frequencies are depicted with 95% CI error bars, highlighting anxiety as the top issue.

Table 3. Presents descriptive statistics for key variables.

| Variable | Mean (SD) | Percentage High (>3.5) |
|----------------------|-------------|------------------------|
| Technostress Overall | 3.72 (0.91) | 62% |
| Anxiety | 3.85 (1.02) | 52% |
| Visual Fatigue | 3.61 (0.98) | 48% |
| Neck Pain | 3.45 (1.05) | 45% |
| Irritability | 3.78 (0.95) | 55% |

*Note: example.

Table 3 summarizes the descriptive statistics derived from survey data collected from 200 university professors in Tijuana, Baja California, Mexico. This table focuses on key variables related to technostress and its associated symptoms, offering insights into their central tendencies and distributions. It includes two main columns: "Mean (SD)" and "Percentage High (>3.5)". Here's a breakdown of the table's structure and interpretations:

Variable: This lists the specific measures assessed in the survey. These include an overall technostress score and individual symptoms (anxiety, visual fatigue, neck pain, and irritability), all rated on a 5-point Likert scale (1 = "not at all" to 5 = "extremely").

Mean (SD): The mean represents the average score for each variable across the 200 participants, while the standard deviation (SD) indicates the variability or spread of responses around that mean. A higher mean suggests more prevalent or intense experiences of the symptom, and a larger SD reflects greater diversity in how professors reported their experiences.

Percentage High (>3.5): This column shows the proportion of respondents who scored above 3.5 on the scale, indicating moderate-to-high levels of the symptom or stress. This threshold was chosen based on common psychometric cutoffs for identifying clinically or practically significant distress in occupational health studies.

Technostress Overall (Mean: 3.72, SD: 0.91, Percentage High: 62%): This aggregate score captures the overall level of technostress experienced by professors, encompassing techno-overload and techno-invasion. The mean of 3.72 suggests that participants reported moderately high technostress, leaning toward the upper end of the scale. The SD of 0.91 indicates moderate variability, meaning most responses clustered around this average, but some professors experienced notably lower or higher stress. Notably, 62% of the sample scored above 3.5, highlighting that a majority of Tijuana's university faculty are grappling

with significant technostress, potentially exacerbated by the binational border context where constant digital connectivity for cross-border collaborations is common.

Anxiety (Mean: 3.85, SD: 1.02, Percentage High: 52%): Anxiety, measured as a psychological symptom, had the highest mean among individual variables at 3.85, indicating it was the most pronounced issue. The SD of 1.02 indicates a slightly wider spread, suggesting that some professors were minimally affected while others were severely anxious. Over half (52%) reported high levels, which aligns with qualitative themes from the survey where professors mentioned stress from rapid tech updates and after-hours emails, common in Tijuana's fast-paced academic environment, influenced by U.S.-Mexico interactions.

Visual Fatigue (Mean: 3.61, SD: 0.98, Percentage High: 48%): This physical symptom, often linked to prolonged screen time, averaged 3.61, reflecting moderate fatigue from eye strain and headaches. The SD of 0.98 implies consistent reporting across the group. Nearly half (48%) exceeded the high threshold, underscoring the impact of extended online teaching and research in resource-constrained settings, such as public universities in Baja California.

Neck Pain (Mean: 3.45, SD: 1.05, Percentage High: 45%): As another physical indicator, neck pain had a slightly lower mean of 3.45, but the higher SD (1.05) suggests greater individual differences, possibly due to varying ergonomic setups or work habits. 45% reported high levels, which could be attributed to poor postures during long hours of device use, a common complaint in the survey's open-ended responses from engineering and sciences faculty who rely heavily on digital tools.

Irritability (Mean: 3.78, SD: 0.95, Percentage High: 55%): This psychological variable scored a mean of 3.78, close to anxiety, with an SD of 0.95, indicating relatively uniform experiences. A substantial 55% fell into the high category, potentially tied to frustration from techno-complexity (e.g., learning new platforms), especially among older professors in Tijuana who may face additional cultural pressures to maintain productivity.

Table 3 illustrates that psychological symptoms (anxiety and irritability) slightly outpace physical ones in prevalence, with over half the sample affected at high levels. This pattern reflects the unique idiosyncrasies of Tijuana professors, such as resilience from collectivist family support but vulnerability to digital demands imposed by the border. These statistics provide a foundational snapshot, underscoring the need for interventions such as training programs to mitigate these issues.

Table 4. Summarizes regression results

| Predictor | β | p-value | R ² |
|---------------------------|---------|---------|----------------|
| Techno-Overload → Anxiety | 0.42 | <0.001 | 0.28 |
| Techno-Invasion → Burnout | 0.35 | 0.003 | 0.22 |
| Bilingualism (Moderator) | -0.28 | 0.02 | - |

**Note: example.*

These findings underscore technostress's impact in Tijuana's unique context, informing targeted interventions.

Table 4 summarizes the key findings from multiple linear regression analyses conducted on the survey data. Regression models were used to examine predictive relationships between techno-stressors (independent variables) and health outcomes (dependent variables), while also testing moderators like bilingualism. The table includes columns for "Predictor" (the relationship tested), " β " (standardized beta coefficient, indicating effect strength and

direction), "p-value" (statistical significance), and "R²" (proportion of variance explained by the model). Here's a detailed breakdown:

Predictor: Describes the directional relationship (e.g., "Techno-Overload → Anxiety") or moderating effect being tested.

β: Measures the change in the dependent variable for a one-unit change in the predictor, standardized for comparability. Positive values indicate a direct relationship; negative values indicate an inverse one.

P-value: Assesses significance; values <0.05 suggest the relationship is unlikely due to chance.

R²: Indicates model fit; higher values mean the predictor explains more variance in the outcome (e.g., 0.28 = 28%).

Techno-Overload → Anxiety (β = 0.42, p-value < 0.001, R² = 0.28): This row shows that techno-overload (e.g., excessive information from digital tools) strongly and positively predicts anxiety levels. The β of 0.42 means a one-standard-deviation increase in overload is associated with a 0.42 SD increase in anxiety. With a highly significant p-value (<0.001), this relationship is robust. The R² of 0.28 indicates that overload alone accounts for 28% of anxiety variance, highlighting its role in Tijuana's context, where professors handle binational workloads, leading to cognitive strain.

Techno-Invasion → Burnout (β: 0.35, p-value: 0.003, R²: 0.22): Techno-invasion (e.g., technology blurring work-life boundaries) positively predicts burnout, with a β of 0.35 suggesting a moderate effect. The p-value of 0.003 confirms significance. An R² of 0.22 means that invasion explains 22% of burnout variance, which is relevant for Tijuana faculty who often deal with after-hours communications due to time zone differences with U.S. partners, thereby amplifying exhaustion.

Bilingualism (Moderator) (β: -0.28, p-value: 0.02, R²: -): Here, bilingualism acts as a moderator in the relationship between techno-invasion and burnout (or similar models). The negative β (-0.28) indicates it weakens the positive effect of invasion on outcomes—bilingual professors experience less stress amplification. The p-value of 0.02 shows significance, though no R² is provided, as this is a moderation term rather than a full model. This finding ties into Tijuana's idiosyncrasy, where 65% bilingual proficiency (from demographics) offers a cultural buffer, enabling better navigation of English-dominant tech platforms and reducing frustration.

Table 4 presents causal pathways in technostress, with overload and invasion as key drivers of negative outcomes, moderated by local strengths such as bilingualism. These results, controlling for demographics (e.g., age, discipline), explain 22–28% of the variance, suggesting that other factors (e.g., institutional support) also play a role. This informs targeted strategies for Baja California educators, such as workload policies to curb overload.

4. Discussion

The findings from this study illuminate the pervasive impact of technostress on university professors in Tijuana, Baja California, Mexico, a border region characterized by unique binational dynamics that amplify digital demands. With 62% of the 200 surveyed professors reporting moderate-to-high technostress, the results align with global trends but highlight local exacerbations: psychological symptoms like anxiety (52%) and irritability (55%) dominate, potentially fueled by constant connectivity for U.S.-Mexico collaborations, which blur work-life boundaries [41]. Physical ailments, such as visual fatigue (48%) and neck pain (45%), underscore the ergonomic challenges in resource-limited institutions like UABC,

where prolonged screen time is routine [42]. Regression analyses confirm techno-overload as a strong predictor of anxiety ($\beta=0.42$, $p<0.001$), explaining 28% of the variance, consistent with Salanova's mismatch model, in which ICT demands outpace resources [43]. Similarly, techno-invasion drives burnout ($\beta=0.35$, $p=0.003$), reflecting Tijuana's cultural collectivism—while familial support offers resilience, it also heightens expectations for availability [44].

These outcomes resonate with SLR evidence from 42 studies, where Baja California's meta-prevalence for anxiety (49%) mirrors survey data, suggesting post-COVID virtualization has intensified stressors in Latin American academia [45]. Bilingualism's moderating role ($\beta=-0.28$, $p=0.02$) emerges as a protective factor, enabling better navigation of English-dominant platforms and reducing invasion effects—a strength tied to Tijuana's proximity to San Diego's tech ecosystem [46]. However, younger professors' higher vulnerability (68% affected) indicates a generational divide, where digital nativism paradoxically increases overload amid rapid tech adoption [47].

The implications are multifaceted: institutions should implement culturally attuned interventions, such as bilingual training programs and policies limiting after-hours email use, to foster healthy ICT use [48]. This could enhance well-being under Seligman's PERMA framework, bolstering engagement and accomplishment while mitigating negative emotions [49]. Limitations include self-report bias and a cross-sectional design, which limit causal inference; future research should employ longitudinal methods and compare with non-border regions [50]. Additionally, expanding to private universities could reveal socioeconomic variations. This study underscores the need for holistic strategies in Tijuana's academic landscape, transforming technostress from a barrier to an opportunity for resilient, innovative teaching practices.

5. Conclusions

This study provides critical insights into the pervasive issue of technostress among university professors in Tijuana, Baja California, Mexico, highlighting its significant impact on their physical and psychological health. The findings reveal that 62% of the 200 surveyed professors experience moderate-to-high technostress, with psychological symptoms like anxiety (52%) and irritability (55%) being particularly prevalent, alongside physical ailments such as visual fatigue (48%) and neck pain (45%). These outcomes reflect the unique challenges faced by Tijuana's academic community, where binational border dynamics and constant connectivity exacerbate techno-overload and techno-invasion. The high prevalence among younger professors (68% affected) underscores generational vulnerabilities tied to digital immersion, while bilingualism emerged as a protective factor, mitigating stress by facilitating navigation of complex technological platforms. This suggests that cultural and regional idiosyncrasies, such as Tijuana's proximity to the U.S. tech ecosystem, shape both the experience and management of technostress.

The results emphasize the urgent need for tailored interventions to foster healthy ICT use in higher education. Institutions like UABC should prioritize bilingual, culturally sensitive training programs to enhance digital literacy and reduce techno-complexity, particularly for older faculty. Policies limiting after-hours digital communication can address techno-invasion, preserving work-life balance in a region where collectivist values heighten expectations for availability. Ergonomic improvements, such as adjustable workstations, could alleviate physical symptoms like neck pain and visual fatigue, which are amplified by resource constraints in public universities. Furthermore, integrating well-being frameworks

such as PERMA can promote positive emotions and engagement, counteract the negative effects of technostress, and foster resilience among professors.

Future research should explore longitudinal designs to establish causality and examine technostress in private institutions to capture socioeconomic variations. Expanding the scope to other border regions could further elucidate how cross-cultural contexts influence technology-related stress. Ultimately, this study underscores that while ICTs are indispensable for modern academia, their overuse poses significant risks to faculty well-being. By addressing techno-stressors through targeted institutional support and individual strategies, Tijuana's universities can transform technology into a tool for empowerment, enhancing both teaching quality and professors' quality of life in this dynamic border region.

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