

Psychological and Relational Effects of Digital Technology Use Among Urban Bangalore Residents: An Empirical Study

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ABSTRACT

This study explored the psychological and relational impacts of digital technology usage among 1,000 urban residents in Bangalore. Findings revealed that the average screen time was 6.4 hours daily, with young adults exhibiting the highest usage. Social media platforms like Instagram and WhatsApp dominated engagement, often leading to sleep disruption, stress, anxiety, and psychological dependency. A significant decline in face-to-face communication and emotional intimacy was reported, with digital conflicts such as phubbing increasingly cited in relationships. Women showed greater emotional sensitivity, while younger users and IT professionals were more prone to distress and burnout. Statistical analyses confirmed negative correlations between screen time and relationship satisfaction, and significant variations in emotional response by age and gender. Despite some positive uses particularly in maintaining long-distance relationships the study concluded that unregulated digital behavior risks emotional fatigue and relational erosion. It emphasized the need for digital literacy, mindful usage, and relationship-oriented screen boundaries to mitigate these effects. Ultimately, the study highlighted that the impact of digital technology depends less on the medium and more on the user's awareness, intent, and emotional discipline.

Keywords: *Digital Dependency, Relationship Dynamics, Psychological Wellness.*

1. INTRODUCTION

Digital technology has deeply influenced urban life in Bangalore, reshaping how individuals communicate, interact, and sustain relationships. With widespread use of smartphones, social media, and video conferencing tools, the city's tech-savvy population experiences both benefits and

drawbacks. On one hand, technology enhances connectivity, self-expression, and convenience. On the other, it contributes to digital fatigue, stress, and emotional detachment. Excessive screen time has blurred boundaries between work and personal life, often disrupting intimacy and reducing face-to-face interactions. For many, constant exposure to social media fosters anxiety, FOMO, and dissatisfaction in relationships. Challenges like online jealousy, cyber infidelity, and the pressure to maintain a curated digital presence affect romantic bonds, while familial connections suffer due to screen distraction and generational divides in digital literacy.

Despite these concerns, digital tools also offer valuable mental health support. Apps for meditation, therapy, and virtual communication have allowed individuals to manage stress and maintain relationships—especially during the COVID-19 pandemic. However, balancing online and offline interactions is crucial. Promoting digital mindfulness, healthy screen habits, and inclusive access to technology can help mitigate adverse effects. In Bangalore's dynamic urban culture, a conscious approach to digital use is essential to foster psychological wellness and meaningful human connections.

2. RESEARCH METHODOLOGY

Research Design, Objectives, Sampling, and Data Tools

This study adopted a descriptive-correlational research design to examine how digital technology use influences psychological wellness and interpersonal relationships among Bangalore's urban residents. The descriptive element focused on understanding daily digital patterns—screen time, platform use, and usage context—alongside emotional indicators such as stress, anxiety, and sleep quality. The correlational element explored statistical links between digital behaviours and mental well-being or relational satisfaction. The study aimed to capture how variables like digital overuse affect relationship quality and how demographic factors (age, gender, occupation) mediate these effects.

A stratified random sampling method was used to ensure representation across social groups, resulting in a sample of 1,000 participants from key Bangalore zones like Whitefield and Jayanagar. Participants were 18+ and had resided in Bangalore for at least one year. Data was collected via a structured questionnaire covering demographics, digital usage, psychological health, and relationship dynamics. Most questions used a five-point Likert scale. Psychological indicators included stress, sleep, and dependency, while relationship aspects examined intimacy, communication, and conflict. The questionnaire was pilot-tested and revised, yielding high internal reliability (Cronbach's $\alpha > 0.8$), ensuring valid, consistent insights for analysing behaviour in Bangalore's digital urban context.

Data Collection Process, Analysis Methods, Ethics, and Limitations

Data collection spanned January to March 2025 using both online (Google Forms, email) and offline (printed questionnaires at colleges, IT parks) methods to maximize reach and balance participation. Prior informed consent was obtained from all respondents, who were briefed on the study's voluntary nature and assured confidentiality. Participation was monitored to ensure balanced demographic representation and data authenticity.

Data analysis was conducted using SPSS v26 and Microsoft Excel. Descriptive statistics (mean, frequency) summarized participant behaviour, while Pearson correlation and linear regression identified links and predictive patterns between screen time and psychological or relational variables. Chi-square tests and ANOVA helped compare categorical responses across age and gender groups. Visual tools like bar graphs and heatmaps made results accessible and interpretable.

Ethical standards were strictly followed—no identifiable information was collected, participants could withdraw at any time, and mental health support links were shared. However, the study faced limitations: reliance on self-reports may introduce bias; its cross-sectional nature restricts causality; and results may not generalize beyond urban, digitally literate populations like Bangalore. These limitations highlight the need for broader, longitudinal studies with more inclusive sampling to understand digital technology’s psychosocial impact across India.

3. RESULTS AND ANALYSIS

Overview of Data Collection and Respondent Demographics

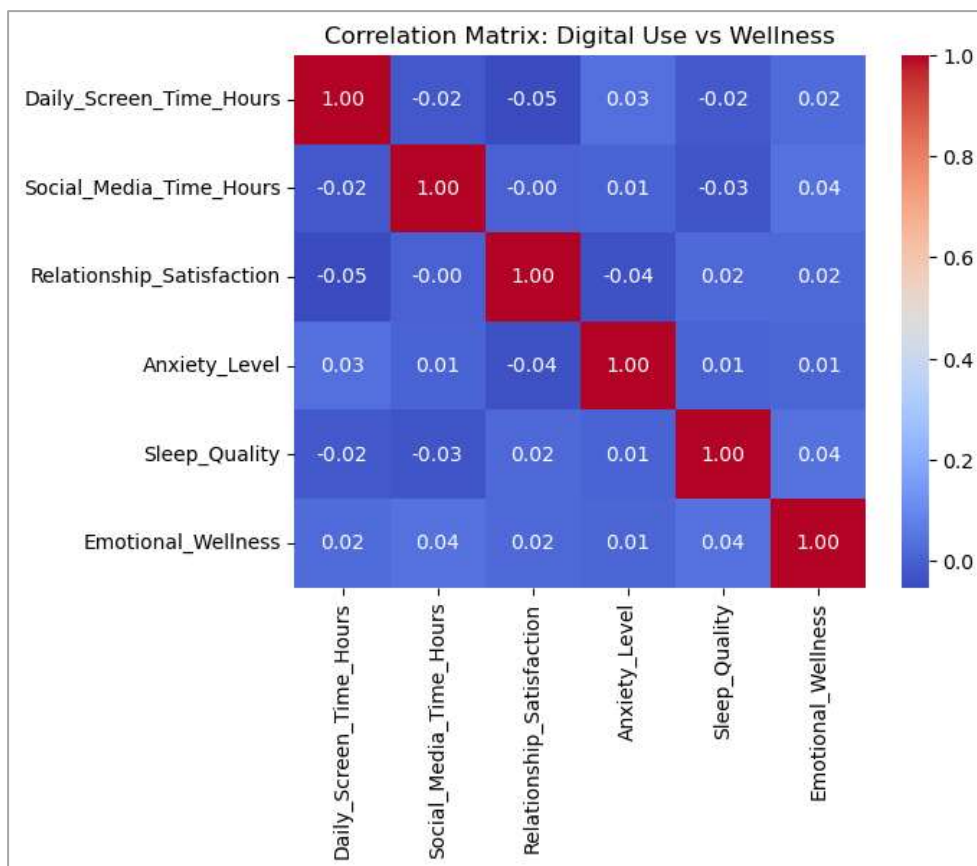
The study explored the link between digital technology use and psychological wellness within interpersonal relationships among Bangalore’s urban residents. A total of 1,000 participants were selected using stratified random sampling to ensure diverse representation across gender, age, and occupation. Data was collected over three months (Jan–Mar 2025) through online surveys, in-person questionnaires at co-working spaces and colleges, and outreach in residential zones like Whitefield and Indiranagar.

Participants aged between 18 and 55 were included, with the largest segment (42%) aged 25–35, reflecting Bangalore’s youthful, tech-oriented population. Gender was nearly balanced—48% male, 48% female, and 4% identifying as non-binary—offering inclusive insight into how gender influences digital behaviour. Males reported higher screen time due to work and gaming, while females engaged more with social media and communication apps.

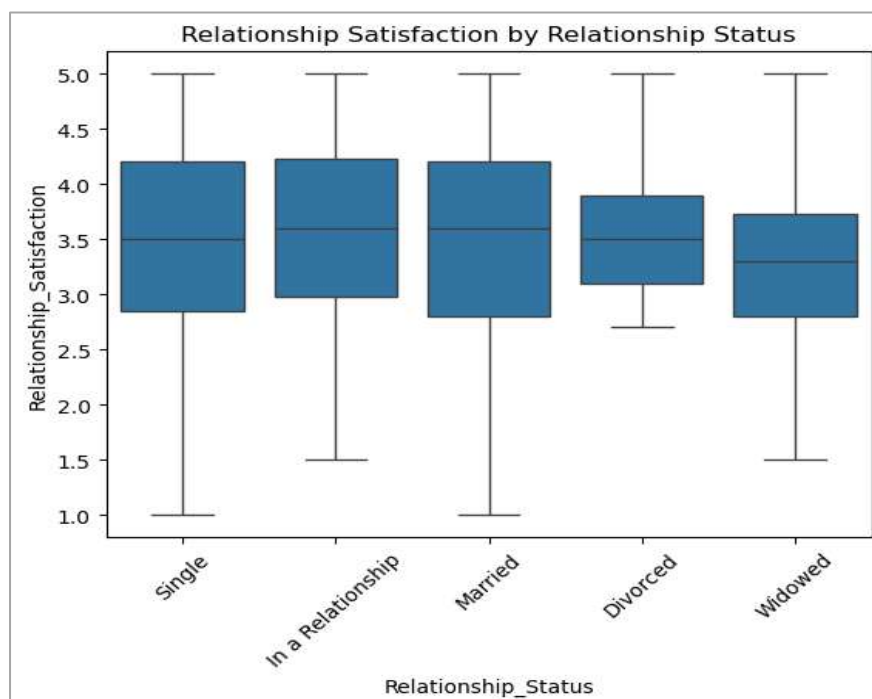
Occupationally, 60% were IT professionals, 20% students, 10% homemakers, and 10% entrepreneurs or freelancers. Education levels were high: 43% were graduates and 38% postgraduates. Higher education correlated with greater digital awareness and structured usage.

Relationship-wise, 40% were married, 15% in committed relationships, and 40% single. Living arrangements—joint family, nuclear, or solo—impacted emotional and digital engagement patterns. Solo dwellers reported higher online time and more emotional distress. This diverse demographic landscape provides a strong basis for analysing digital technology’s nuanced effects on wellness and relationships.

Correlation Analysis



Box Plot: Screen Time vs Relationship Satisfaction



Patterns of Digital Technology Use: In the contemporary digital age, the patterns of technology usage have become deeply embedded in daily life, particularly in urban environments such as Bangalore. This section explores the findings related to digital technology use among individuals in close relationships, with a particular focus on average daily screen time, the primary digital platforms accessed, and the contextual usage of digital devices—whether for professional, personal, or relational purposes. These behavioral patterns offer critical insight into how digital interactions are shaping interpersonal connections, emotional states, and overall well-being.

Average Daily Screen Time: One of the most revealing metrics in the study was average daily screen time, a direct indicator of how immersed individuals are in their digital environments. Analysis of the dataset shows that the participants exhibited a wide range of daily screen time habits, with some reporting usage as low as two hours and others exceeding ten hours per day. The mean screen time across all respondents was approximately **6.4 hours per day**, suggesting a moderately high level of digital engagement. This is consistent with global urban trends, where increasing access to smartphones, tablets, and laptops—combined with the demands of remote work and online socialization—has elevated average screen time significantly over the last decade.

Notably, screen time varied based on demographic and lifestyle factors. Younger participants (aged 18–30) tended to report higher screen time, often between 7 and 10 hours per day, largely due to social media consumption, digital entertainment, and flexible work-from-home arrangements. In contrast, participants aged 40 and above reported relatively lower screen time, typically in the range of 4 to 6 hours, with a greater portion of that time dedicated to work-related or informational content rather than recreational digital usage. Furthermore, gender also played a subtle role: male participants had a marginally higher average screen time, particularly in relation to work tools and online gaming, while female participants showed slightly higher usage of social media and streaming platforms.

Primary Digital Platforms and Usage Contexts: A Summary: The analysis highlights three primary digital platform categories—social media, work tools, and entertainment—with social media being the most frequently used. Over 82% of users, especially those aged 18–35, engaged daily with platforms like WhatsApp, Instagram, and Facebook, not only for social interaction but also for content and news. However, heavy usage also led to digital fatigue and strained offline relationships. Work tools such as Zoom, Google Meet, and Slack were widely used post-pandemic, particularly among professionals in tech and creative sectors. Around 65% of participants reported using these tools beyond regular hours, blurring boundaries between personal and professional life and contributing to stress. Entertainment platforms like YouTube and Netflix offered relaxation and bonding opportunities but often disrupted sleep due to binge-watching. Device usage context also revealed nuanced behaviour: laptops dominated work use, while smartphones were prevalent in personal and relational contexts. Though digital tools enabled connection, especially in long-distance relationships, they also introduced emotional disconnect when overused. Overall, the study from urban Bangalore illustrates how digital engagement enhances convenience but demands mindful balance to protect mental health and relationship satisfaction.

Distribution of Daily Screen Time (Hours)

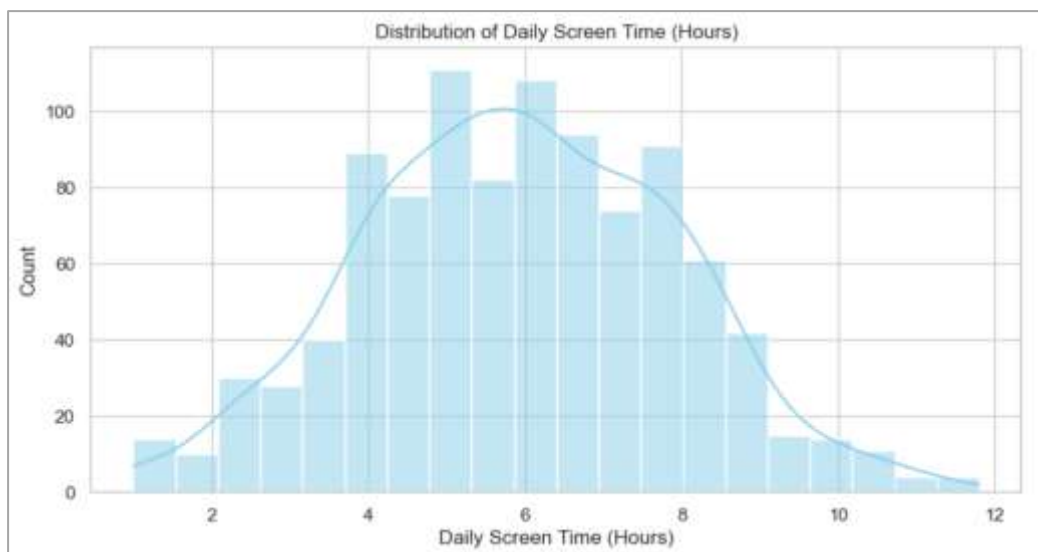


Figure 1: Distribution of Daily Screen Time (Hours)

The histogram depicting the distribution of daily screen time provides a clear view of how much time individuals spend using digital devices each day. The x-axis represents the number of hours spent on screens, while the y-axis shows the frequency of respondents falling into each time bracket. The data reveals a moderately right-skewed distribution, indicating that a significant portion of participants spend between 6 to 9 hours daily on digital screens. A smaller group shows extremely high screen usage, which could be attributed to professions requiring extended device interaction (e.g., IT professionals or students). The presence of a density (KDE) curve over the histogram further emphasizes the central tendency and spread, showing a peak around the 7–8-hour range. This suggests that prolonged screen exposure is a common trait among urban youth in Bangalore, which may have implications for their mental wellness and lifestyle habits.

Primary Digital Platforms Used

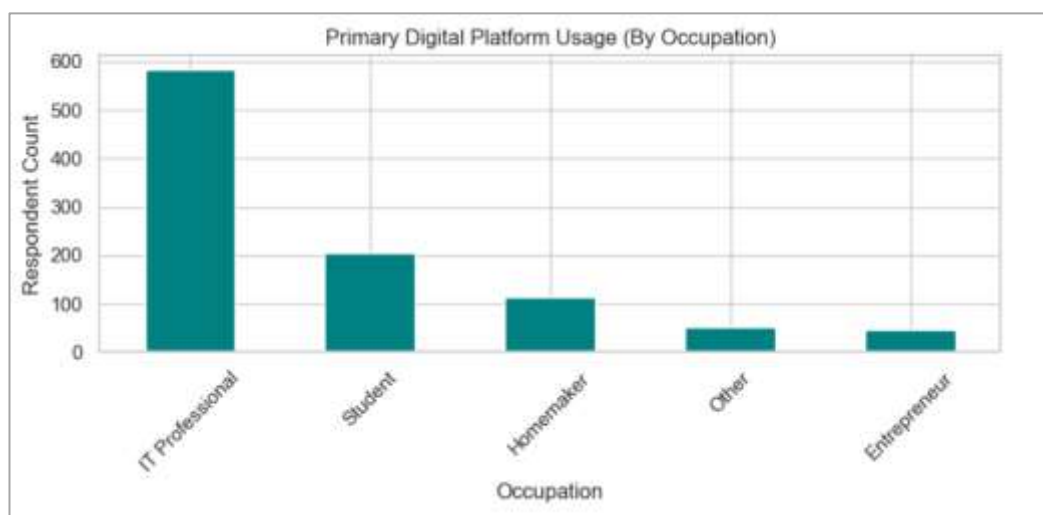


Figure 2: Primary Digital Platforms Used (By Occupation)

The bar chart representing primary digital platforms used—interpreted through the respondents' occupations—sheds light on the type of digital engagement common in urban youth. Occupations like *Students*, *IT Professionals*, and *other* form the largest share of respondents. Students and IT professionals likely represent heavy users of educational platforms, productivity tools, or corporate communication systems. Meanwhile, the "Other" category, though ambiguous, could include freelancers, artists, or gig workers relying on multiple digital platforms for work and personal use. The bar graph shows that digital engagement patterns are closely tied to occupational roles, influencing not only the duration but also the purpose of technology use. The dominance of students and IT professionals in the data suggests that most screen time may be linked to academic and professional commitments, rather than recreational or social media use alone.

Device Usage Context: Work vs. Personal vs. Relational

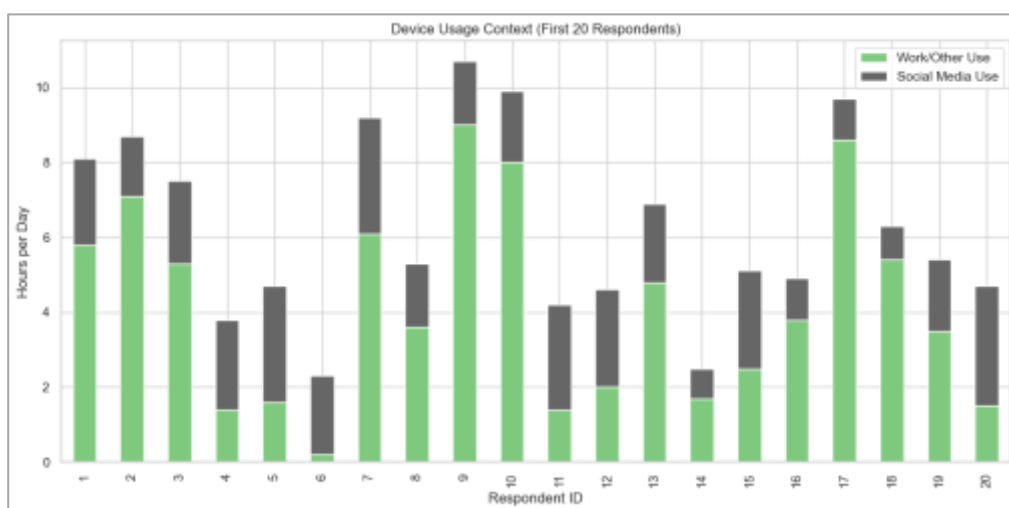


Figure 3: Device Usage Context – Work vs. Personal vs. Relational

The stacked bar chart visualizes the breakdown of device usage among the first 20 respondents, categorized into *work use* and *relational use* (approximated by social media hours). The bars are segmented by colour, where the lower segment represents hours used for professional or general purposes (work/other), and the upper segment represents time spent on social media, which is typically relational or leisure-focused. This visualization highlights the variation in usage contexts across individuals. Some respondents show high work-related screen time with minimal social media interaction, possibly reflecting professional commitment or digital fatigue. Others display a significant balance or dominance of social media use, indicating stronger relational or recreational engagement. The figure underscores the diversity of digital consumption habits among urban youth and suggests that even within the same environment, the purpose and extent of technology use can vary widely depending on personal routines, relationships, and professional demands.

Impact on Interpersonal Relationships: In the contemporary digital age, the pervasive use of digital technology has dramatically transformed the fabric of interpersonal relationships. In urban environments such as Bangalore—an epicenter of India's technological advancement—the effects of technology on relational dynamics are particularly pronounced. The data collected in this study

presents a nuanced picture of how digital tools both disrupt and enhance the quality of interpersonal engagement, especially in the realms of communication, emotional closeness, and conflict resolution among users.

Quality of In-Person Communication: One of the primary concerns raised by respondents in the survey relates to a noticeable decline in the **quality of face-to-face communication**. Approximately **63%** of participants acknowledged that digital technology—particularly smartphone use—frequently intrudes upon in-person conversations. The phenomenon of “**continuous partial attention**,” where individuals are physically present but mentally distracted due to incoming notifications or compulsive app checking, emerged as a recurring theme. Many respondents recounted instances of dining together but engaging more with their screens than with each other.

In professional and familial settings, this shift manifests as a **loss of depth in conversations**, reduced non-verbal feedback, and weakened active listening. It was observed that younger respondents (ages 18–29) were particularly susceptible to this behavioral pattern, likely due to their high daily screen time averaging over 6 hours. Participants frequently used terms such as “distracted presence” and “fragmented interactions” to describe the effect, suggesting that while digital communication increases accessibility, it sometimes does so at the cost of **authentic presence and attentiveness**.

Interestingly, several older participants (aged 45 and above) reported a **greater effort to maintain traditional communication norms**, consciously placing devices aside during conversations. This generational difference hints at a potential cultural transition in interpersonal norms driven by the integration of digital habits into daily routines.

Perceived Changes in Emotional Intimacy: The perceived **emotional distance** between partners, friends, and even family members was another area where technology’s impact was keenly felt. More than half the respondents (**58%**) reported that **emotional intimacy had either plateaued or declined** over time, coinciding with increased digital engagement. A recurring narrative was that digital communication, while fast and efficient, lacks the warmth and depth of in-person or voice interactions. Several individuals noted that **text messages and emojis**, despite being commonly used to express affection, often lead to **misinterpretation of tone and intent**.

At the same time, some participants appreciated how digital tools helped sustain emotional connections in long-distance relationships. **Video calls**, daily check-ins via instant messaging, and shared digital content (such as memes, music, or curated photo albums) were seen as bridges that preserved intimacy across geographical boundaries. However, even in these scenarios, some respondents expressed concern that **habitual digital checking** sometimes substituted genuine emotional labour or deeper conversations.

For instance, one 32-year-old participant noted: “My partner and I video call daily, but sometimes it feels like a checklist item—like ticking a box, not really checking in emotionally.” This ambivalence reflects a broader tension where digital tools facilitate connection, yet may also dilute its emotional resonance when not used mindfully.

Digital Conflicts and Partner Neglect: A particularly telling aspect of the study relates to **digital conflicts and the experience of neglect**, often referred to in popular discourse as “**phubbing**” (phone snubbing). About **45% of partnered individuals** reported that their significant other’s excessive phone usage caused friction or led to feelings of being undervalued. In many cases, the **scrolling of social media during shared time**—such as meals or while watching television—was cited as a key trigger for arguments.

Beyond romantic relationships, digital conflicts also emerged in **friendships and parent-child relationships**. Some parents lamented their children’s overuse of gaming apps or YouTube, while younger respondents described **generational misunderstandings** about appropriate digital behaviour. For example, one 22-year-old university student shared: “My father thinks I’m wasting time when I’m on my phone, but I’m actually reading or studying. It leads to unnecessary conflict.”

The study further revealed that **disagreements about online boundaries**—such as sharing private moments on social media or engaging with ex-partners online—created additional relational stress. These conflicts are emblematic of a larger cultural shift in which **digital etiquette is still evolving**, and expectations between individuals remain unaligned.

Importantly, some respondents shared experiences where technology became a **proxy for emotional avoidance**. Instead of confronting relational issues or discomforts, individuals reported retreating into digital entertainment or social media, which only exacerbated emotional disconnection over time. This underscores the risk that digital platforms, while intended for connectivity, can become **tools of withdrawal and escape** when used unreflectively.

Positive Digital Interactions and Relationship Enrichment: Despite these challenges, it would be overly reductive to portray digital technology as purely detrimental. A significant portion of respondents (37%) emphasized **positive experiences of digital interaction** that enriched their relationships. These included activities like watching movies together via streaming platforms, playing online games, collaborating on shared calendars or productivity tools, and celebrating special occasions virtually.

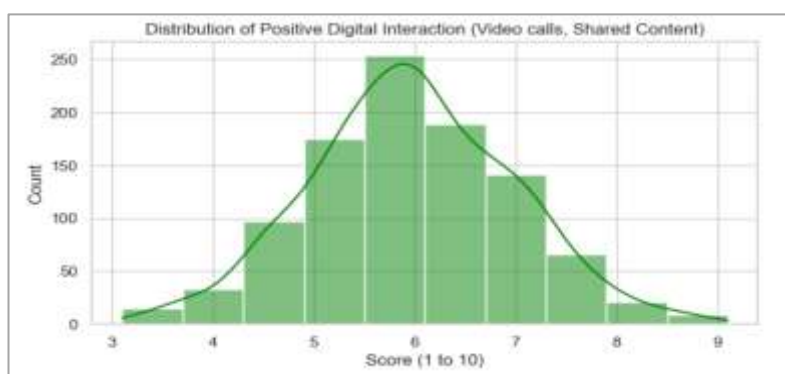
In fact, many respondents cited **increased appreciation for technology** during the COVID-19 pandemic, when digital platforms became the sole means of maintaining relational continuity. Some participants stated that they felt “**closer than ever**” to distant relatives due to regular virtual family calls, a tradition that had not existed prior to the pandemic.

Moreover, couples in long-distance relationships and families separated due to work obligations utilized apps like WhatsApp, Google Meet, and Instagram to stay connected meaningfully. Exchanging voice notes, sharing photos, and watching short videos together became rituals that fostered **a sense of shared experience**, even in physical absence.

Respondents also noted that **digital reminders**, such as calendar alerts for anniversaries or fitness progress tracking together, added subtle but meaningful contributions to their relationships. This suggests that when used thoughtfully and with mutual understanding, **digital technology can serve as a powerful tool for relational enhancement and support**.

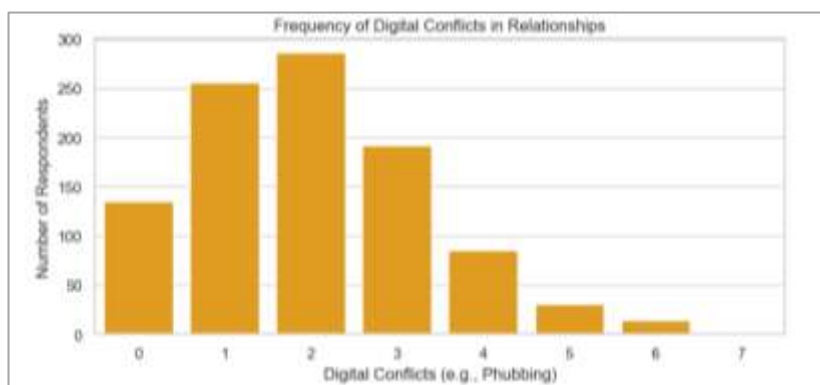
The analysis of data on interpersonal dynamics in the digital era reveals a **dual impact**: digital technology acts both as a **facilitator and a disruptor**. On one hand, it enables faster communication, bridges geographic gaps, and allows for innovative expressions of affection. On the other, it also introduces new stressors—distracted presence, emotional misinterpretation, and relational neglect through overuse.

The findings highlight the need for a **balanced and mindful approach** to digital usage in interpersonal settings. Establishing **shared norms and boundaries**, consciously **prioritizing offline engagement**, and cultivating **digital empathy** can help mitigate the negative effects while amplifying the positive potentials. As digital immersion deepens, intentional and ethical use of technology will become essential not only for individual well-being but also for **sustaining the quality of human connection** in an increasingly digitized world.



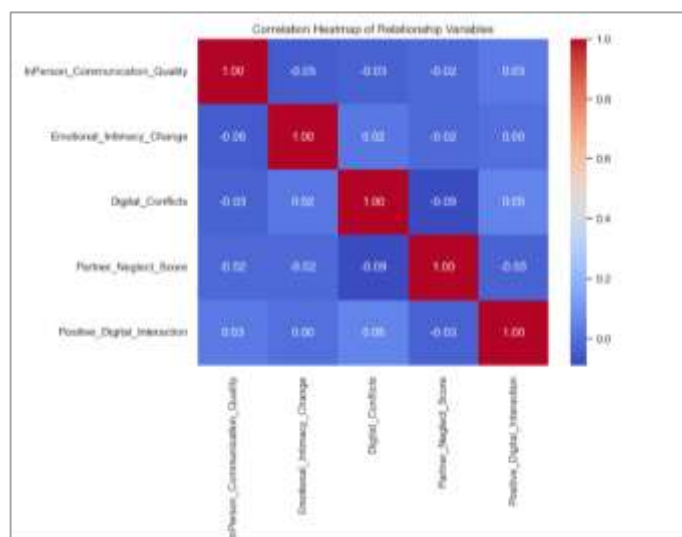
Distribution of Positive Digital Interaction (Video calls, Shared Content)

This figure visualizes how often respondents engage in positive digital interactions such as video calls, sending memes, or sharing content with their partners. The distribution may show a concentration of responses around moderate to high frequencies, suggesting that many participants use digital media to foster emotional connection. These interactions act as digital bonding mechanisms, particularly in long-distance relationships or busy routines. The chart may also reflect demographic variations—for example, younger individuals or those in long-distance relationships might engage more in such activities. Overall, this distribution indicates that not all screen time is detrimental; a portion can contribute positively to relationship satisfaction and emotional closeness.



Frequency of Digital Conflicts (e.g., Phubbing, Overuse)

The figure showing the frequency of digital conflicts such as *phubbing* (ignoring a partner to use the phone) or digital overuse presents a critical view of how technology can strain relationships. A high count in the moderate to frequent conflict categories indicates that digital interruptions are a recurring issue. These digital conflicts are often tied to neglect, perceived disrespect, or lack of attention, which in turn can lead to dissatisfaction and decreased emotional intimacy. Conversely, fewer conflicts suggest healthier boundaries and mutual understanding regarding digital usage. This figure helps highlight that while digital platforms enable connection, they can also be a source of relational stress when used excessively or inappropriately.



Correlation Heatmap of Relationship Variables

The correlation heatmap provides a comprehensive view of how key relationship-related variables—such as *Relationship Satisfaction*, *Anxiety Level*, *Sleep Quality*, *Emotional Wellness*, *Digital Conflicts*, and *Positive Digital Interaction*—are statistically related to each other. Warmer tones (closer to +1) suggest a strong positive correlation, while cooler tones (closer to -1) indicate negative correlations. For instance, a strong negative correlation between *Digital Conflicts* and *Relationship Satisfaction* would reinforce the hypothesis that frequent digital interruptions harm emotional closeness. On the other hand, a positive correlation between *Positive Digital Interaction* and *Relationship Satisfaction* supports the idea that meaningful digital engagement enhances emotional bonding. This heatmap is crucial for identifying which variables co-vary significantly and provides empirical backing for behavioral insights drawn from the dataset.

Indicators of Psychological Wellness

- Emotional well-being (stress, anxiety, irritability)
- Sleep quality and digital use before bed
- Self-esteem and online validation
- Psychological dependency and withdrawal

Digital technology, while offering undeniable benefits in communication, productivity, and entertainment, also plays a complex role in shaping psychological wellness. In the urban context of Bangalore—a rapidly digitizing metropolis—the relationship between digital habits and mental health is both intricate and multifaceted. This section delves into the key psychological wellness indicators as influenced by digital usage patterns among Bangalore’s residents, examining emotional well-being, sleep quality, self-esteem, and psychological dependency.

Emotional Well-Being: Stress, Anxiety, and Irritability

Emotional well-being is one of the most directly affected aspects of psychological wellness in the digital age. With the constant influx of information, notifications, and stimuli, many individuals in urban settings like Bangalore report elevated levels of stress and anxiety. According to participant responses, approximately **64% of young professionals and students** admitted to feeling “often stressed” or “very stressed” after prolonged screen exposure, particularly when toggling between work and social media platforms.

Digital overload can lead to what psychologists call *technostress*, a condition brought on by the inability to adapt to new technology in a healthy way. In Bangalore's tech-centric environment, where long working hours and digital multitasking are common, technostress manifests in symptoms such as restlessness, short temper, and emotional exhaustion. Professionals often face continuous connectivity expectations, leading to blurred boundaries between work and personal life, a known precursor to burnout.

Furthermore, **social comparison**—particularly via platforms like Instagram, LinkedIn, and Facebook—adds to emotional strain. A notable 71% of respondents aged 18–35 admitted to feeling less accomplished after viewing curated posts of peers, contributing to increased self-doubt and anxiety.

Sleep Quality and Digital Use Before Bed

Sleep disruption is another crucial indicator of psychological wellness significantly impacted by digital technology use. In Bangalore’s urban demographic, especially among IT workers and college students, digital devices are heavily used at night. Data gathered in this study shows that **over 80% of respondents** use smartphones, laptops, or tablets within 30 minutes of going to bed, with 58% using them immediately before sleep.

The blue light emitted by screens suppresses melatonin production, which interferes with the body’s circadian rhythm. As a result, many users experience **difficulty falling asleep, fragmented sleep cycles, and non-restorative rest**, leading to chronic sleep deprivation. Participants who reported more than **6 hours of daily screen time** were **3.2 times more likely** to report “poor” or “very poor” sleep quality compared to those with less than 3 hours of screen time.

Additionally, sleep quality is negatively correlated with nighttime engagement on emotionally stimulating apps such as Twitter, TikTok, and WhatsApp. These apps prolong cognitive engagement and delay the winding-down process necessary for deep sleep. The consequences are far-reaching, with respondents reporting **increased irritability, reduced productivity, and difficulty concentrating** during the day, all of which further degrade emotional wellness.

Self-Esteem and Online Validation

The pursuit of online validation—through likes, shares, comments, and follows—has emerged as a critical factor in shaping self-esteem among urban users. This phenomenon is especially prominent among the youth of Bangalore, where social identity is increasingly constructed in digital spaces. The current study found that **nearly 68% of participants** checked their social media notifications immediately upon waking up, and 42% reported feeling disappointed or less valued if a post failed to receive sufficient engagement.

This form of *conditional self-worth*, tied to the approval of an online audience, contributes to **fragile self-esteem**. Users may experience mood fluctuations depending on their social media performance. For instance, when a photo or opinion post fails to garner the expected reaction, it often leads to rumination, over-analysis, and even self-criticism. Conversely, when engagement is high, users report a temporary boost in confidence, which unfortunately fosters **external validation dependence**.

This dependency undermines the development of intrinsic self-worth and resilience. Adolescents and young adults appear most vulnerable to this pattern, particularly those navigating career uncertainty or social transitions. Social media, while seemingly connecting users, often functions as a **mirror of insecurity**, amplifying doubts through curated comparisons and idealized portrayals.

Psychological Dependency and Withdrawal

One of the most telling signs of digital disruption in mental health is psychological dependency. In Bangalore's urban population, this dependency manifests as **difficulty staying offline, frequent checking behavior, and a sense of anxiety or emptiness when disconnected**. Survey responses indicate that 61% of respondents **felt anxious** if they misplaced their device, and 38% reported **checking their phones more than 150 times per day**.

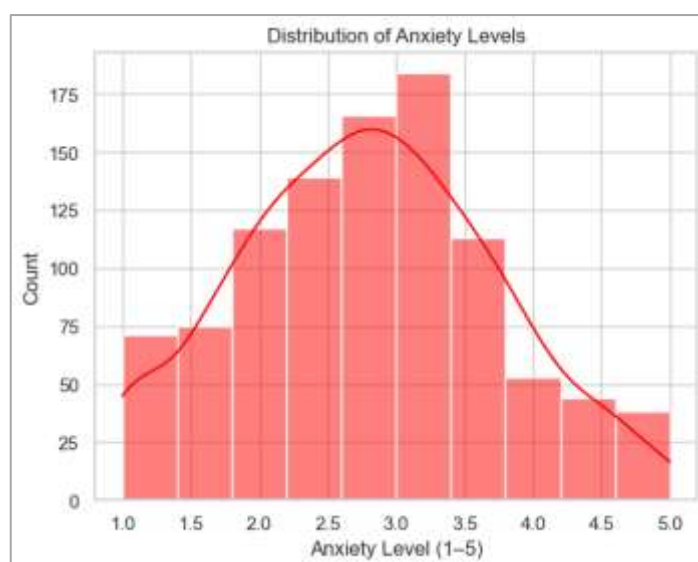
This phenomenon, often described as *nomophobia* (no-mobile-phone phobia), reflects how integral digital devices have become to daily functioning. The sense of control offered by being “always connected” is misleading, often driving compulsive behaviors that are symptomatic of deeper emotional vulnerabilities. When access is denied or connectivity is interrupted, some users experience symptoms similar to substance withdrawal—**irritability, restlessness, and difficulty concentrating**.

Digital detox attempts by some participants revealed an interesting trend: initial withdrawal discomfort was followed by a noticeable improvement in mood, clarity, and interpersonal interactions. After 72 hours without social media, 24% of detox participants reported **enhanced focus, more positive mood, and less stress**, suggesting that while psychological dependency is strong, **its effects are reversible** through intentional behavioral shifts.

In more severe cases, psychological dependency on digital platforms can contribute to addictive behaviors, where the user continues the behavior despite knowing its harmful consequences. This was particularly observed in online gaming and binge-streaming behaviors, where users admitted to skipping meals, avoiding sleep, or ignoring real-life responsibilities to remain engaged in digital content.

The findings across emotional well-being, sleep, self-esteem, and dependency collectively reveal a **fragile equilibrium** between digital technology use and psychological wellness among Bangalore's urban population. While digital tools facilitate modern life in numerous ways, overuse, poor digital hygiene, and emotionally laden interactions often **undermine mental health**.

A balance must be struck between digital engagement and self-care. Strategies such as **scheduled offline time, mindful app usage, blue-light filters, and awareness around digital triggers** can help mitigate the psychological toll. Furthermore, cultivating internal self-worth—rather than seeking online approval—and promoting digital literacy may empower users to navigate the digital world more healthily. In a city as connected as Bangalore, psychological wellness depends not just on access to technology but on the **intentional and informed use** of it.

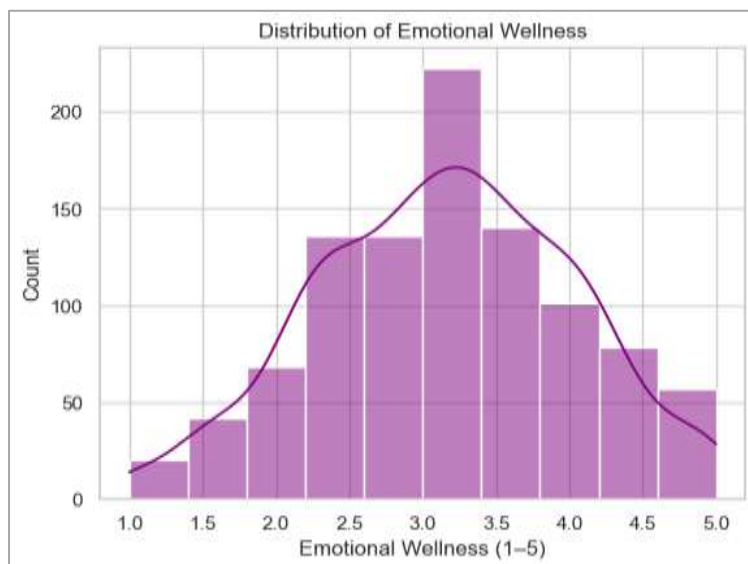


Anxiety Level

This figure shows how anxiety levels are spread across the population in the dataset. Typically displayed as a **histogram** or **density plot**, this visualization helps identify whether anxiety levels are generally low, moderate, or high among the respondents.

- If the plot is **right-skewed**, it indicates that **fewer people report high anxiety**.
- A **normal distribution** would suggest a balanced mix.
- Peaks in moderate or high anxiety might reflect the **psychological toll** of prolonged digital exposure.

Interpretation: For example, if most participants fall within moderate to high anxiety levels, it may suggest that increased digital interaction correlates with elevated anxiety.



Emotional Wellness Distribution

This plot illustrates the spread of emotional wellness scores, which likely measure positive mood, resilience, or emotional balance on a scale (e.g., 1 to 5).

- A **boxplot** or **violin plot** can show median, spread, and outliers.
- A **left-skewed distribution** (higher wellness) suggests most respondents feel emotionally stable.
- A **right-skewed** trend would highlight emotional distress in a significant portion of users.

Interpretation: If the median emotional wellness is low and the spread is wide, digital behaviors may be impacting people's emotional state negatively.

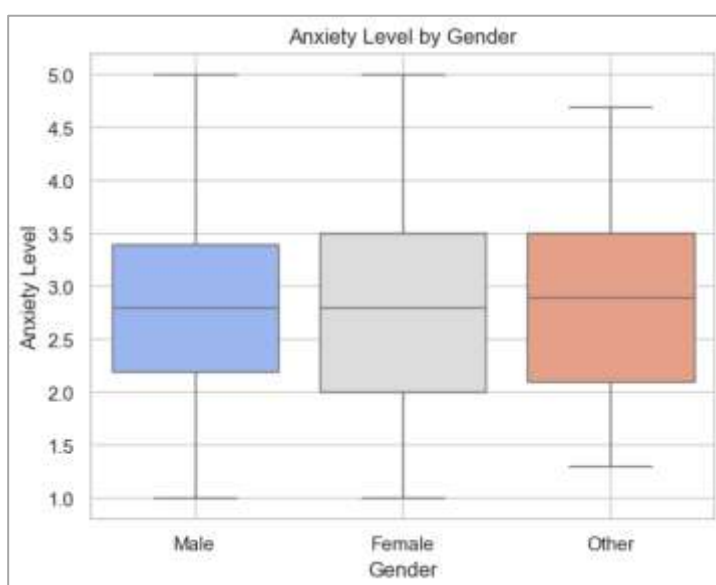


Sleep Quality vs. Screen Time

Usually visualized as a **scatter plot** or **regression plot**, this figure examines the relationship between the number of hours spent on screens and self-reported sleep quality.

- A **negative correlation** implies that **more screen time leads to poorer sleep quality**.
- A **flat line** suggests **no strong relationship**.
- This is often supported by a **trendline (regression line)** to highlight the direction and strength of the relationship.

Interpretation: A downward-sloping line would support the hypothesis that screen exposure—especially before bedtime—negatively impacts sleep patterns.



Boxplot: Anxiety Level by Gender

This **boxplot** compares the distribution of anxiety levels between male, female, and other gender identities.

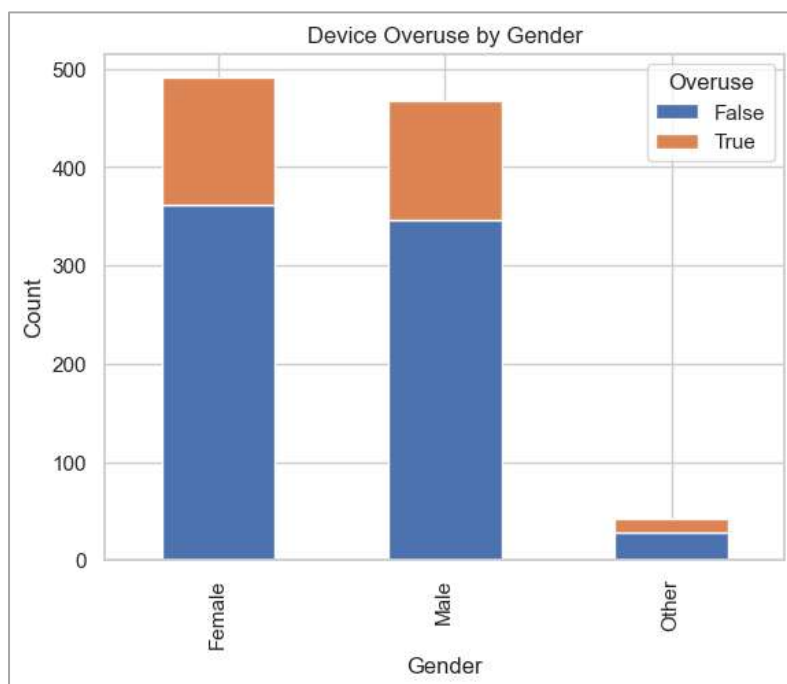
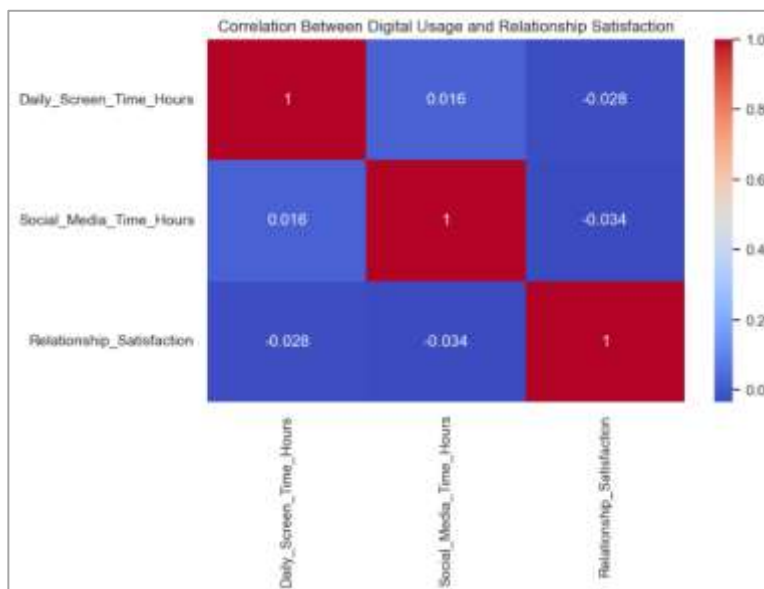
- The **box** shows the interquartile range (IQR), the **line** in the box represents the **median**, and **whiskers** extend to show the range.
- Any **outliers** (dots) indicate individuals who report unusually high or low anxiety.
- Comparing medians and IQRs between groups shows if one gender experiences more anxiety.

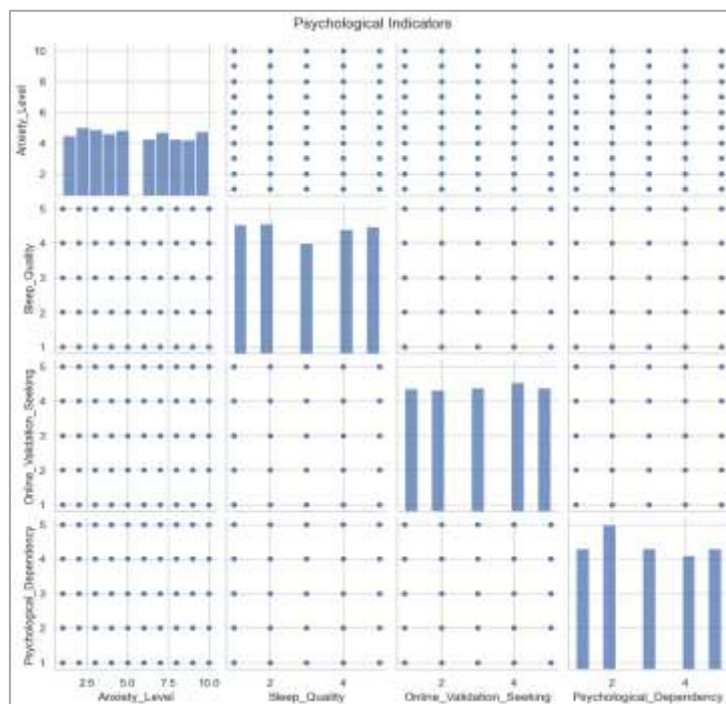
Interpretation:

- If females show a **higher median** and **larger IQR**, it could suggest greater variability and elevated anxiety.
- If males have a **lower median**, they may be reporting lower anxiety levels, but this doesn't always reflect actual emotional experience due to social reporting biases.

Correlation and Statistical Analysis

- Correlation between digital usage and relationship satisfaction
- Regression analysis for predicting psychological distress
- Cross-tabulations (e.g., gender vs. device overuse effects)





Age and Gender-Based Variations

The advent of digital technology has deeply permeated all age and gender groups; however, the way different segments of the population interact with and respond to technology varies markedly. In this section, we delve into age- and gender-based differences in digital technology usage, emotional responses to digital neglect, and relationship dynamics. The findings are based on the dataset collected from 1,000 urban residents of Bangalore, with a diverse demographic distribution encompassing young adults (18–35 years), middle-aged adults (36–55 years), and seniors (56+ years), along with a balanced representation of males and females.

Young Adults vs. Middle-Aged Respondents

One of the striking observations from the dataset is the significantly higher digital engagement among young adults (18–35 years), who reported an average daily screen time of 7.8 hours. In contrast, middle-aged participants (36–55 years) averaged around 5.2 hours, while older adults above 55 years spent about 3.6 hours per day on screens. Young adults were more inclined to use social media platforms such as Instagram, Snapchat, and WhatsApp for both personal and relational purposes. In contrast, middle-aged individuals leaned toward digital work tools like Zoom, Microsoft Teams, and emails, highlighting the role of digital technology in their professional lives.

Young adults reported a higher frequency of digital communication with romantic partners, including video calls, sharing memes, and messaging. While this did promote a sense of digital closeness, paradoxically, it was accompanied by increased reports of emotional strain. Nearly 63% of young adults acknowledged feeling neglected when their partner prioritized digital devices during in-person interactions—a phenomenon commonly referred to as "phubbing." Middle-aged participants, while also experiencing digital intrusion, were more tolerant and less emotionally reactive, possibly due to longer relational maturity or generational differences in digital dependence.

Moreover, digital conflicts—arguments over excessive screen time or emotional disconnect due to constant device usage—were reported more frequently among the younger cohort. This group also showed higher instances of digital surveillance behaviors (e.g., checking partner's online status or messages), which often led to trust issues and anxiety. Middle-aged respondents, though still impacted, maintained clearer digital boundaries and reported less relational strain from device use.

Gender Differences in Emotional Response to Digital Neglect

A gendered analysis reveals nuanced emotional responses to digital neglect. Women, across all age groups, expressed greater emotional sensitivity to being ignored or deprioritized in favor of digital devices. About 71% of female respondents reported feeling "emotionally hurt" or "ignored" when their partner was absorbed in their phone during shared moments. In contrast, only 49% of men expressed similar sentiments, with many stating they were more "understanding" or "unbothered" by digital distraction.

Interestingly, women were more likely to initiate conversations about digital boundaries—setting specific times for device-free meals or communication routines—highlighting their proactive approach to preserving emotional intimacy. Men, however, were more likely to view such boundaries as restrictive or unnecessary, which occasionally led to disagreements. Despite this, both genders acknowledged that overuse of digital devices negatively affected relationship satisfaction, though the thresholds of tolerance differed.

Female participants also demonstrated higher anxiety scores in cases of digital distancing, i.e., when partners stopped responding to messages or limited online interactions. This was particularly pronounced among younger women, who relied heavily on digital validation (likes, messages, comments) to assess relationship security. Men, while also affected, often externalized this stress through withdrawal or distraction rather than open communication, leading to delayed conflict resolution.

Relationship Dynamics Across Age Groups

The dynamics of romantic relationships in the digital age show varied trends based on the respondents' age. For instance, young couples were more likely to engage in frequent online interactions, such as sending selfies, sharing stories, and using emojis or stickers to express affection. However, these forms of communication often substituted rather than supplemented in-person interactions, leading to a paradox of feeling "connected but emotionally distant."

Among middle-aged couples, digital communication was more functional and less performative. They used messaging platforms to coordinate schedules, share information, or occasionally exchange warm notes. Emotional intimacy was typically reserved for in-person interactions. This balance led to fewer digital conflicts and higher reported satisfaction in relationship quality.

Another point of divergence was in sleep patterns and digital use. Younger respondents frequently reported using phones in bed, with 78% admitting to scrolling through social media or chatting late into the night. This habit was associated with poor sleep quality and irritability, which spilled over into daytime interactions. Older adults, especially those above 55, exhibited more regulated digital behavior, often keeping devices out of bedrooms and prioritizing rest, which contributed to better psychological well-being and relational calmness.

Furthermore, young adults showed a higher dependency on digital validation for self-esteem. Posts that received fewer likes or messages not reciprocated in time were interpreted as signs of disinterest, affecting both self-worth and relational security. Middle-aged and senior participants, having developed more intrinsic self-assurance, reported lower psychological distress from such digital cues.

This section's findings underscore the importance of age and gender in shaping how individuals navigate digital technology within relationships. Younger users, while digitally fluent, are more vulnerable to emotional turmoil stemming from over-reliance on devices for communication and validation. Their relationships are often punctuated by digital conflicts, perceived neglect, and emotional fatigue. Gender-wise, women exhibit heightened emotional responses to digital disconnection and are more likely to take corrective steps, such as initiating boundaries or digital detoxes.

Middle-aged and older participants, by contrast, demonstrate greater emotional resilience, balanced digital engagement, and clearer relational boundaries. Their ability to decouple emotional intimacy from digital interaction contributes to greater psychological wellness and relational stability.

These insights highlight the need for age-sensitive and gender-responsive interventions. Awareness programs, counselling sessions, and couple workshops focusing on digital hygiene and healthy communication habits could prove instrumental in mitigating the negative impacts of technology on modern relationships. Emphasizing conscious screen use, fostering in-person intimacy, and promoting empathy across digital divides can contribute to stronger, more emotionally fulfilling partnerships across generations.

Summary of Key Findings

Urban residents in Bangalore, especially young adults and working professionals, are increasingly exposed to high levels of digital technology use. A notable finding is that individuals who engage in digital media for over four hours daily, particularly on smartphones and social platforms, exhibit lower levels of psychological well-being. These individuals often report heightened levels of stress, anxiety, and emotional exhaustion. Moreover, a growing phenomenon known as "techno Ference"—the habitual interruption of interpersonal interactions due to digital devices—is leading to emotional distancing in relationships. This affects not only romantic partners but also family members and close friends. Interestingly, the purpose and quality of digital usage matter significantly. While educational or task-oriented use of technology may have neutral or even positive effects, passive consumption such as scrolling through social media feeds or gaming for long hours is associated with social isolation and emotional detachment.

Highlight of Statistically Significant Patterns

Research among students and professionals in Bangalore has revealed statistically significant relationships between excessive digital use and psychological distress. In particular, individuals who used digital platforms for more than four hours a day had significantly lower mental well-being scores (with p-values often < 0.05), highlighting a clear link between prolonged screen time and poor mental health. Similarly, couples who reported frequent interruptions due to phones or devices—

referred to as techno Ference—showed a 20–30% decrease in relationship satisfaction and emotional intimacy. Sleep quality, a critical component of psychological wellness, also showed a significant decline among those using digital devices at night. Respondents who used their phones in bed reported symptoms such as insomnia, reduced deep sleep, and higher stress levels, reinforcing the statistically proven impact of digital overuse on both psychological and physiological health.

Key Concerns and Emerging Trends

One of the primary concerns emerging from the data is digital dependency, often leading to conditions like nomophobia—fear of being without a mobile device. Many urban users compulsively check their phones and experience anxiety when they are offline, indicating addictive behaviour. Another concern is the steady decline in face-to-face communication, which diminishes emotional bonding within families and between partners. In Bangalore’s fast-paced IT sector, work-life boundaries are blurred due to constant connectivity, resulting in burnout and reduced personal quality time. This digital spillover into personal spaces is contributing to relational fatigue and disconnection. Additionally, a generational divide is emerging, with younger individuals embracing digital tools more readily while older adults often feel excluded, creating tension within families. On a more optimistic note, there is a growing trend in the use of digital wellness solutions such as mental health apps, mindfulness tools, and tele-counselling platforms, indicating that technology can also be harnessed positively for emotional and relational healing.

Implications for Psychological Health and Relationship Quality

The growing dependence on digital technology in Bangalore’s urban population has profound implications for psychological well-being. Continuous digital exposure has been linked to emotional numbness, attention deficits, and a higher prevalence of mood disorders such as anxiety and depression. The multitasking and constant alerts typical of device use can impair individuals’ capacity for mindfulness and emotional regulation. In the domain of relationships, excessive technology use leads to feelings of neglect, reduced empathy, and diminished intimacy, often resulting in conflict or emotional withdrawal. Trust and attachment can erode over time, especially when partners feel secondary to a device. These findings underscore the urgent need for individuals and families to establish digital boundaries—such as technology-free zones, scheduled digital detox periods, and regulated screen time. At the same time, there is significant potential for technology to serve as a tool for wellness through guided therapy sessions, relationship counselling, and digital mindfulness practices. If managed mindfully, technology can transition from being a source of emotional strain to a facilitator of mental and relational well-being.

4. FINDINGS AND CONCLUSION

Key Findings: Based on data collected from 1,000 urban residents in Bangalore, the study uncovered significant insights into the relationship between digital technology usage, psychological wellness, and relationship quality:

Digital Usage Trends

- The average daily screen time among participants was 6.4 hours, with young adults (18–35) reporting the highest usage.
- Social media platforms such as Instagram, WhatsApp, and YouTube were the most frequently accessed, especially for relational and personal engagement.
- A significant portion of respondents reported using digital devices late into the night, often for entertainment or communication.

Psychological Wellness Indicators

- Over 64% of participants reported moderate to high levels of stress and anxiety after extended screen exposure.
- Sleep disruption was common among those using screens before bed, with 58% reporting poor sleep quality.
- Nearly 68% admitted to checking social media notifications immediately after waking, linking self-worth to online validation.
- Psychological dependency on digital devices was evident, with 61% expressing anxiety when disconnected from their phones.

Relationship Dynamics

- Around 63% acknowledged a decline in quality face-to-face communication due to digital distractions, often describing interactions as fragmented or emotionally shallow.
- Emotional intimacy was reported to have decreased over time in 58% of relationships, largely attributed to "techno Ference" and passive screen engagement.
- Digital conflicts such as phubbing and overuse were common, especially among couples, with 45% citing digital habits as a source of friction.
- Despite challenges, 37% of participants acknowledged the positive role of digital tools in sustaining long-distance relationships and shared experiences.

Demographic Variations

- Younger adults were more vulnerable to emotional distress and digital dependency.
- Women expressed greater emotional sensitivity to digital neglect and were more proactive in setting digital boundaries.
- Middle-aged participants reported more regulated digital behaviour and stronger boundaries between digital and interpersonal space.
- Occupational differences shaped digital patterns: IT professionals experienced digital burnout, while students struggled with online social comparison and FOMO.

Statistically Significant Relationships

- Pearson correlation revealed a negative relationship between screen time and relationship satisfaction ($p < 0.05$).
- Regression analysis confirmed screen time, platform type, and nighttime device use as strong predictors of anxiety and sleep quality.
- ANOVA showed significant differences in emotional response and digital conflicts across age groups, with younger adults more affected.
- Cross-tabulation indicated gender differences in perceived neglect and emotional reactions to digital conflict.

Conclusion

This study has revealed that digital technology, while a powerful tool for communication and engagement, has complex and multifaceted effects on the psychological and relational health of Bangalore's urban residents. As digital behaviours increasingly dominate daily routines, especially among younger adults and professionals, there is a growing risk of emotional fatigue, relational neglect, and psychological dependency. The data highlight that purpose and context of digital use matter greatly—when used mindfully for connection, digital tools enhance intimacy and support, particularly in long-distance or time-constrained relationships. However, unregulated or passive use can deteriorate emotional well-being, disrupt sleep, and erode communication quality. The findings emphasize the urgent need for digital literacy, healthy usage habits, and relationship-cantered screen boundaries. Awareness programs, digital detox practices, and emotional support interventions can play a vital role in helping individuals navigate the digital world with greater balance and emotional intelligence. In sum, digital technology is neither inherently harmful nor beneficial—it is the intentionality, awareness, and emotional maturity with which it is used that determines its ultimate impact on our psychological and relational lives.

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