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THE INFLUENCE OF URBANIZATION AND TECHNOLOGY ON DEPESSION RATES IN PESHAWAR

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ABSTRACT

Highly competitive rates of urbanization and use of technology in contemporary lives present great challenges in the field of mental health, especially with regard to the increased rates of depression. This study explores the interrelation of urbanization and use of technology and depression in 396 residents of an urban location in Peshawar, Pakistan. With the cross-sectional observational design, the research evaluates the association between such factors as overcrowding, lack of green areas, digital over-exposition, and individual technological routines and depressive symptoms. The participants were recruited by the convenience sampling technique with age 18 and above; who are using digital technologies regularly, and

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who have been living in urban areas at least a year. The data was retrieved through a structured self-administered questionnaire on demographics, urbanization factors, technology use pattern, depression (PHQ-9) assessment, as well as lifestyle factors. The findings indicate that a high level of survey respondents fell prey to mental exhaustion to extended use of the gadgets, urban stress and anxiety, and depression even in active social media use. Interestingly, most of these participants have described their experiences following online social comparisons as lowering in-state and confidence, respectively, and blame their psychological issues to urbanization and exposure to technology. Nonetheless, most of them also identified the beneficial effects of technology use that help them to stay socially connected and stated that they take active breaks to use digital devices, which positively affect mental health. This evidence makes clear the critical necessity to develop urban planning solutions, with the focus on better mental health support, digital literacy and responsible use of devices, and the availability of mental health services and green areas in urban areas

Keywords: urbanization, the use of technologies, depression, mental health, residents of big cities, digital overexposure, social media

INTRODUCTION

The ongoing wave of the urbanization process, along with the extensive use of technology in almost all aspects of contemporary existence, imposes an overwhelming and multidimensional challenge to the health of society, especially in relation to the growing depression rates (Hepat *et al.* 2024). The pervasive sadness, low interest in activities, and a sense of self-worthlessness that describe depression are major causes of impairment of emotional well-being and work performance as well as general functioning (Kim *et al.* 2025). With concentration of populations in urban hubs and the proliferation of digital platforms, it is crucial to know how these two factors interact with each other and affect mental health. This introduction will explain the closely intertwined nature of urbanization and technological growth with the growing occurrence of depression, as to why it happens and what this means to individuals and society (Kim *et al.* 2025; Twenge 2019).

Population density, environmental pollution, noise pollution, and social isolation as the manifestations of urbanization were associated with higher rates of mental disorders, including depression (Buttazzoni *et al.* 2021). Stress, anxiety and

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social isolation are in most cases a by- product of the fast-urban living and may trigger and worsen depressive symptoms (Trivedi *et al.* 2008). The impersonality and short-term nature of the city life may contribute to a breakdown of the social support systems, as people experience isolation and deficiency of protection. In addition, area competition in cities may cause a sense of inferiority and the urge to achieve success, which also influences the level of mental health (Ventriglio *et al.* 2020). In many cases, living in the cities is more demanding with added competition due to the resources (Fang *et al.* 2024). It is also true that the amygdala becomes more activated in the urban people when they perform cognitively-demanding tasks, indicating a greater stress response (Lambert *et al.* 2015).

Technology and its influence on the development of mental health is contradictory and complicated. Although digital technologies have a lot of advantages, such as greater connectivity, access to information, and self-expression rates, their excessive and improper use may significantly disrupt mental health (Chen *et al.* 2022). Feelings of inadequacy, anxiety and depression may develop due to a steady intake of information and the comparison to others that is enabled through social media (Qi & Yang 2024). It has also been revealed that spending more time in front of the screen is also linked to the presence of depression symptoms, especially in teenagers and young people (Khalaf *et al.* 2023). Uncontrolled consumption of new media, and, more specifically, social media and smartphones, has also been associated with the higher risk of developing depression and could be an underlying cause of the skyrocketing rates of adolescent suicides (Wen & Tian 2024).

Mental health problems such as depression have been worsened by the ever-present needs of being connected by technology (technological stress) in adolescents. Digital stress is an emerging phenomenon which is known to be a major source of mental health complications, particularly in youth. Compulsive feeling that one must be connected to the Internet as well as the fear of missing out and the possibility of being cyberbullied can lead to a vicious cycle that destabilizes self-esteem and leads to depressive symptoms. Moreover, the intense exposure to unrealistic lifestyles of the people through social media may also encourage social comparison and the belief of inadequacy further contributing to the worsening of the mental health issues. (Qi & Yang 2024)

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The overlap of technology with urbanization also adds more to the situation on mental health care. City residents tend to depend so much on technology to guide their lives on daily basis, interact with others and getting information. But, this dependence can be also a reason to increase loneliness and lost connections because virtual interactions substitute real ones. It has been found that high rates of adolescents use smartphones and multitask with them and on media, in addition to the resulting maladaptive sleep habits, and adverse impacts on cognitive control, academic achievement, and socioemotional functioning (Abi-Jaoude *et al.* 2020). The boundary between work and personal life being blurred due to the technology is not a case helping in lesser stress and burnout especially in the city where there is a lot of competition and the work is boundless.

The connection between urbanization, technology, and depression is not only deep but also requires the expertise of many disciplines, including sociology, psychology, public health, and urban planning. Conceptualization of the mechanism by which urbanization and technology influence mental wellness is important to the construction of effective interventions, policies and measures of preventing mental wellness. It is also possible to identify particular risk factors, including social isolation, digital stress, and exposure to negative online content, so that the targeted prevention strategies can be developed. This understanding can be translated into designing cities and digital space that would facilitate social bonding and help prevent cognitive disorders and social isolation due to urbanization and technology (Gupta *et al.* 2022; Qi & Yang 2024).

It is also important to analyze such factors against the background of certain urban conditions, taking into consideration the differences in socioeconomic standards, cultural values, and resource accessibility. Poor health outcomes of urban life, particularly, mental health outcomes are more widespread within disadvantaged communities, who commonly are unable to access green spaces, medical services, and social support system. One should also think about the potential benefits of urbanization including better access to opportunities and cultural diversity and better access to mental healthcare services that specialize in specific disorders, technology as well including greater social connection, accessing online support groups and the ability to express themselves and be creative (Collins *et al.* 2024).

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Digital integration can have a beneficial effect on the psychological health of low-income populations, even though the previous studies focused on digital technologies and their impact on mental health promotion (Wen & Tian 2024).

The general implication of technological evolution and its inclusion in the world is that it poses the agendas of chances and hazards to mental health and more research should be done to comprehend the intricacies of these (Dragano & Lunau 2020). This highlights the need to have ethical leadership in reducing negative effects of AI adoptions on psychological wellbeing and employee morale. The United States today is experiencing a dramatic uptake in synergy of AI at the work place, and it is taking a toll on the psyche of many employees. With the rise in automation of jobs, and increased capabilities of AI systems as surrogates to humans, concerns about job catastrophe, time crunch and a degradation of psychological well-being are also rising. (Kim *et al.* 2025).

To cope with these realities, companies need to take initiatives to plan steps so that they can focus on keeping employees fit and healthy (Patel *et al.* 2025). The use of artificial intelligence technology to support employees will be able to allow the organizations to sustain their performance and the mental health of their employees. It should also be considered that the organizations can provide their employees with continuous training and assistance that will allow them to adjust to new technologies minimizing the possible harmful effects. The organizations are urged to create and execute AI systems in a manner that enhances fairness, transparency, and accountability (Soulami *et al.* 2024).

The end result should be a kind of urban mix and digital habitat that encourages societal and personal affiliation, psychological health, and reduction in the pernicious effects of urbanisation and technology on individual and societal wellbeing. In future studies, a more balanced attempt should be made, where both positive and negative effects of AI on worker well-being have to be examined. It is important to be cautious of the use of AI to create an individual approach to the needs of individual employees, ages, and education levels (Kim *et al.* 2025; Soulami *et al.*, 2024).

Artificial Intelligence (AI) version of organizational management framework wonderfully changed how recruitment, performance assessment, and employee engagement was realized. AI should also be utilized with caution in the organization,

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and should be applied depending on the individual wanting to use it: their needs, their age, their level of education. Although AI promises a lot of benefits, ethically, there have been concerns about its effects on the well-being of employees (Thakur *et al.*, 2025). The interventions aimed at addressing the negative effects that employing AI in the workplace might have on the well-being of employees should not be overlooked by the positive implications of implementing AI in the workplace (Sadeghi 2024; Jeong *et al.* 2024).

The growing number of AI applications in decision-making introduces certain fears of bias, privacy violation, and loss of work to the system in such spheres as employment and promotion (Madanchian & Taherdoost 2025). Therefore, several corporations cannot handle the prospect of AI and ethical challenges of implementing it, all the time attempting to make employees happy. Constant surveillance and evaluation of the performance with the help of AI tools can induce more stress and anxious feelings in employees, create a culture of mistrust, and harm their job satisfaction and general well-being. These digital solutions should be customized to particular needs, age, and level of experience of every worker to enable them to establish a safe and inclusive workplace (El-Helaly 2024).

Another feature of this phenomenon is the selective deskilling of jobs and functions, previously the prerogative of workers. Thus, the issue of employee well-being should be one of the priorities of the organization, which maintains a good working environment. The tendency towards trusting more in artificial intelligence might lead to lack of interpersonal skills and emotional intelligence, social isolation and anxiety (Klímova & Pikhart 2025).

Automation of work, replacement of workers, loss of some types of work, re-distribution of existing skills, and the need to gain new competencies represent significant challenges at the modern workplace (Soulami *et al.* 2024). The alienation, sense of loneliness and impoverishment of social support may arise because of this digital transition. These are the difficulties that underline the fact that HRM must offer its employees opportunities regarding professional development, career growth, and effective workload management. The role of AI to improve well-being is to support employees in a personalized manner. As an example, wellness programs powered by AI may survey employees and give them personalized suggestions so

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that they may avoid burnout and balance their professional and personal lives (Thakur *et al.* 2025).

Although it has a great potential, the use of AI within the HR practices evokes a lot of ethical concerns especially in terms of its effect on the well-being of the employees. The greatest possible ethical consideration is the predisposition of AI to algorithm bias, based on the biased and unrepresentative nature of the training data, so potentially produced systems will perpetuate and even increase pre-existing disparities within society and in the end lead to unjust and discriminative outcomes in key HR processes, including recruitment schemes and performance appraisals (Thakur *et al.* 2025).

Aim

This research would help to analyze the trends in social media and technology use by people and discuss the possible effects of these processes on mental health, loneliness, depression, and psychological exhaustion.

Objectives

1. To determine the rates of using social media and technology and its pattern among participants.
2. To investigate the correlation between long-term use of technologies in the context of its effects on loneliness, depression, and fatigue.
3. In order to detect intervention measures, which include taking breaks on social media, which can reduce unpleasant mental health outcomes.

Methodology

The study was conducted across various urban locations in Peshawar, including homes, institutions, offices, and open spaces, over a period of six months. It followed a cross-sectional design to examine the relationship between urbanization, technology use, and depression. Participants were recruited using a convenience sampling technique. The sample size was calculated using the standard formula ($n = Z^2pq/E^2$) with a 95% confidence level and 5% margin of error, resulting in 385; however, 396 participants were included to improve reliability.

Participants included adults aged 18 years and above who had been living in urban areas for at least one year, were regular users of digital technology, could understand English or Urdu, and provided informed consent. Individuals with

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severe psychiatric disorders unrelated to depression, those residing in rural areas, those with cognitive impairments, and incomplete responses were excluded.

Data were collected using a structured self-administered questionnaire after obtaining consent. The questionnaire covered demographic information, urban stress factors, technology use patterns, depression assessment using PHQ-9, and lifestyle factors such as physical activity, sleep, and social support. All data were kept confidential and stored securely according to ethical research standards.

RESULTS

Age Distribution with frequency-based Coloring

The age frequency distribution shows that most participants fall between 18 and 27 years, with ages 23 and 25 being the most common (38 each). This indicates a youth-dominated sample, likely due to data collection in an academic or urban setting. Adults (35 and above) are underrepresented, with only one or two participants in each. Notably, age 38 has no participants. Overall, the data suggests that findings from this study are most applicable to young adults, and generalizations to older populations should be made with caution (Fig 1).

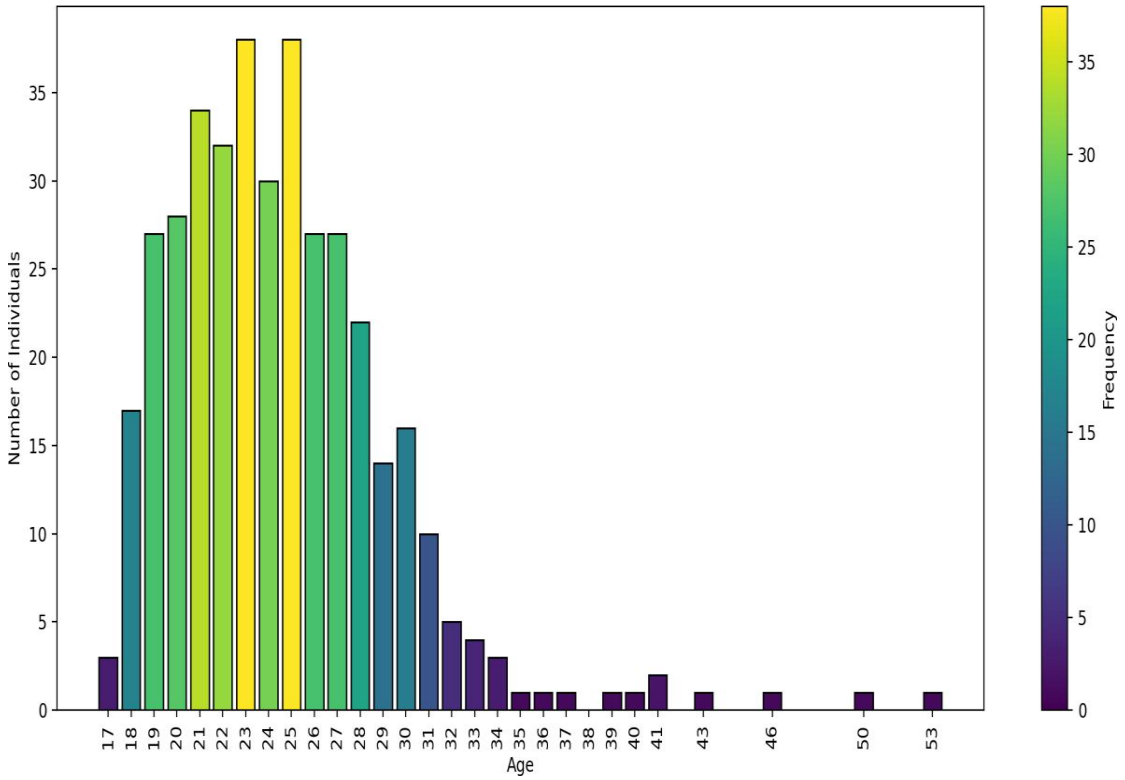


Fig 1: Age Distrribution with frequency-based Coloring

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Gender Distribution

The gender distribution shows that out of 396 participants, 289 (73%) are male and 107 (27%) are female. This indicates a male-dominated sample, which may reflect the gender ratio within the study setting or sampling bias. As a result, any conclusions drawn from the data may be more representative of male perspectives and experiences. Caution should be taken when generalizing the findings to the broader population, especially regarding gender-related differences (Fig 4.2).

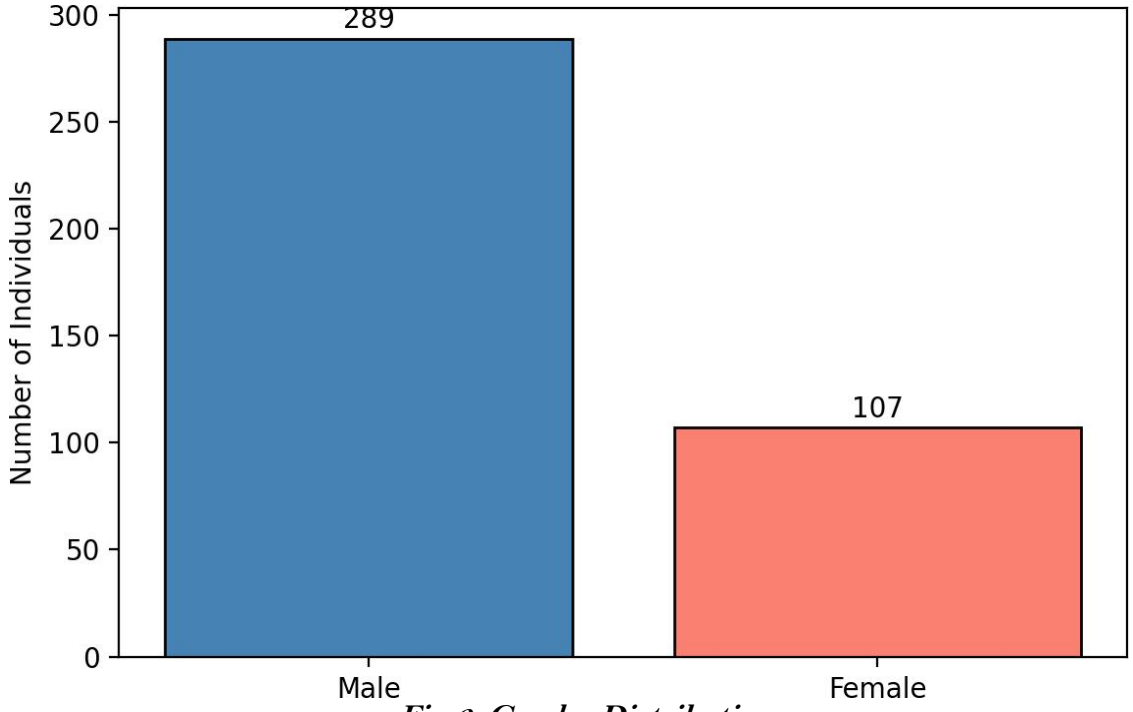


Fig 2: Gender Distribution

Area of Residence Distribution

The data indicates that out of 396 participants, 332 (84%) belong to urban areas, while only 64 (16%) are from rural areas. This shows a significant dominance of urban residents in the sample, likely due to the urban-focused study setting or accessibility of urban populations. As a result, the findings will be more reflective of urban experiences, particularly in relation to how urbanization and technology influence mental health outcomes like depression. Care should be taken when generalizing the results to rural populations, whose experiences and access to technology may differ considerably .

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Duration with current provider

The majority of respondents (69%) have been living in urban environments for more than 10 years, indicating long-term exposure to urban settings. A smaller group (11%) reported living in urban areas for less than 1 year, suggesting recent relocation. Additionally, 11% had lived in urban areas for 1–5 years, while 9% had a duration of 6–10 years. Overall, the data shows that most participants have extensive experience with urban living, which may influence their adaptation, lifestyle, and perceptions shaped by prolonged urban exposure.

Response frequency by category

The majority of participants ratedtheir experience as either ―Moderately ‖ (36%) or ―Slightly ‖ (32%), indicating that most respondents felt a mild to moderate level of intensity regarding the measured construct (e.g., stress, fear, etc.). A smaller portion, 22%, chose ―Extremely ‖ , reflecting a high level of the construct, while only 11% reported ―Not at all ‖ , suggesting.

Response frequency options

Out of 396 participants, only 16.7% reported that they *frequently* have access to green or open spaces in their neighborhoods, while a large proportion, 36.4%, said they *rarely* do. Additionally, 26% claimed they *never* have access, and 21% said access is *occasional*. This data indicates that a significant majority of participants face limited or no access to green/open spaces in their local environment—an issue that may contribute to lower quality of life and mental well-being in urban settings (figure 3).

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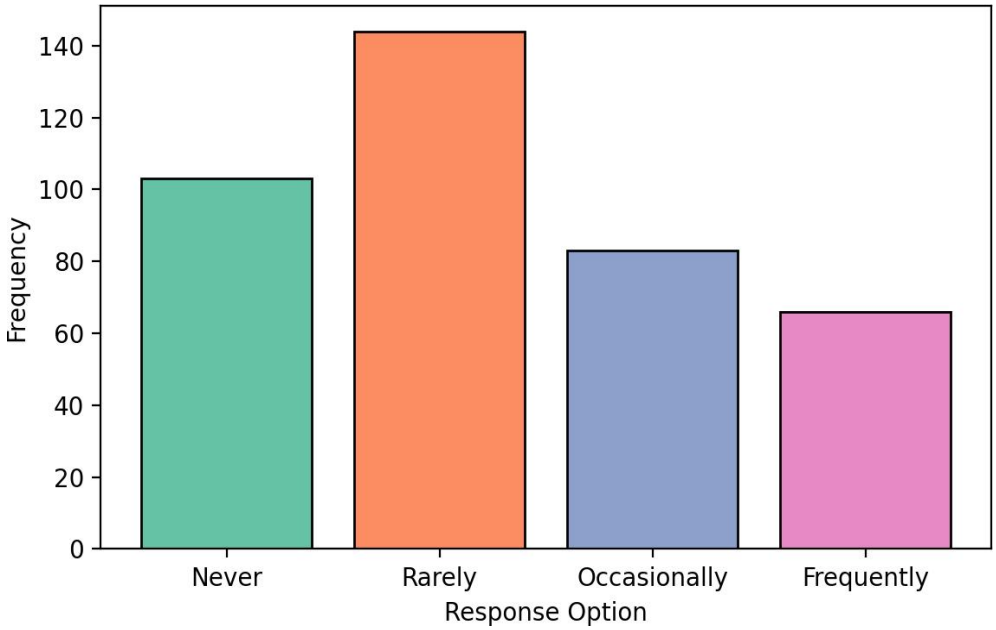


Fig 3 : Response frequency options

Response frequency distribution

Out of 396 respondents, 31.6% reported sometimes feeling stress or anxiety due to living in an urban area, while 27.3% said they rarely felt such emotions. 24.5% of participants stated they never experienced urban-related stress or anxiety, and 16.6% indicated they always did. These findings indicate that while a significant portion experiences stress intermittently, a smaller but important group faces persistent anxiety, highlighting the psychological burden urban environments may impose on certain individuals .

Daily Screen time duration among Respondents

Out of 396 participants, the largest proportion (37.4%) reported using electronic devices for 2 to 4 hours daily. This was followed by 8 to 10 hours (24.7%) and 5 to 7 hours (22.2%) of usage. A smaller group (15.7%) reported using devices for less than 2 hours per day. These findings suggest that most individuals in urban areas engage in moderate to high levels of screen time, which could be contributing to stress and anxiety—highlighting a potential link between electronic device usage and mental well-being in urban populations.

Respondents check social media

Among the 396 participants, daily social media usage was reported by 54.3%, while

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35.4% used it multiple times per day, highlighting a high level of engagement. Only 9.8% used it occasionally, and a very small group (0.5%) reported never using social media. These results reflect a strong digital presence in urban populations, where frequent social media use may play a role in shaping social behavior, emotional well-being, and mental health .

Level of Agreement with the statement

The majority of participants agreed that technology helps them stay connected. Specifically, 47.7% agreed and 39.1% strongly agreed with the statement, showing a clear positive perception. Only 10.9% remained neutral, and a very small percentage (2.3%) disagreed. These findings suggest that technology, particularly tools like social media and messaging apps, plays a significant role in maintaining social connections among users .

Perceived impact level Distribution

The majority of participants felt that social media has a moderate to significant negative impact on their mental health. Specifically, 39.1% reported feeling moderately affected, and 23% felt greatly affected. About 9.6% felt extremely impacted, while 28.3% reported only a slight effect. These results suggest that while social media remains a key part of daily life, many users experience notable mental health challenges associated with its use.

Frequency of Response Choices

The results show that nearly half of the participants (44.7%) have never felt worse after comparing themselves to others online, suggesting a degree of resilience to negative online comparisons. However, a considerable 40.9% reported that they rarely experience such feelings, indicating occasional vulnerability. Notably, 14.4% of respondents consistently felt worse due to online comparisons. These findings highlight the emotional toll social media can have on self-perception for a significant subset of users .

Diagnosed depression can cause prolong period of sadness

According to the figure, it was diagnosed that 66.7% of the participants were suffering from a prolonged period of sadness due to depression, while 33.3% of the participants were not affected by sadness.

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Role of urbanization and technology in mental health

Most of the respondents (71.7) feel that urbanization or the technology has also had a role to play in their mental problem. This signifies the increasing interest on the effects of an urban lifestyle, surrounded by continuous connectivity in digital means, on the psychological health. In the meantime, 28.3 percent of participants did not connect the mental health concerns to these factors implying that an individual experience of mental health depends on the diversity of its causes.

On the basis of social media use, can feel a person lonely

In this figure shows that, 39.4 percent of the participants felt lonely on the occasions when they used social media or online chatting and 60.6 responded that there was no such feeling. This implies that the setting whereby a vast proportion of the population feels lonely in most online interactions is more pronounced than the discussions of the larger segment of the population who does not associate their social media activities or online chats with loneliness .

Using a mobile for long time can make a person mentally tired

There is also some quite meaningful part of participants (87.4%) that claimed to feel tired of their mind after several hours of use of the phone or computer so that prolonged time in front of a screen can be characterized as heavily connected to being tired of the mind. Even as few as 12.6 per cent of them have not gone through the same and it is highly likely that the overuse of digital devices has become one of the most common root causes of mental and cognitive burnout in the large cities.

Take a break from mobile to feel better mentally

Most of the respondents (76.3%) reported that they consciously have gaps in the use of their phone or social media to enhance their health. This implies that people are becoming aware of the adverse consequences of continuous digital connection and the necessity to take some digital breaks. Conversely, 23.7 percent said they do not take such a break and this could indicate continuous connectivity habits or ignorance towards the value of unplugging habits.

DISCUSSION

The results of a survey demonstrate the complex interrelationship between urbanization, the use of technology, social media engagement and the consequences of the mental health of 396 responders living in cities. A large majority reported

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having lived in urban settings for extended durations (many over 10 years). Existing research confirms that prolonged urban residence increases exposure to chronic stressors such as overcrowding, noise, social fragmentation, and limited restorative environments which cumulatively exacerbate mental health vulnerability (Arifwidodo & Chandrasiri, 2024; Colleony *et al.* 2023). In Bangkok, those who frequently visited urban green spaces during lockdown reported higher WHO-5 well-being scores, highlighting the buffering effect of nature during crises.

Nearly two-thirds of participants acknowledged experiencing stress or anxiety attributed to urban environments. This parallel global finding linking fast-paced urban living to elevated cortisol, anxiety, and burnout (Mechelli *et al.* 2024). Limited access to green or open spaces reported by over half of your sample aligns with evidence that reduced greenery contributes to depression, loneliness, and decreased cognitive restoration (Feng & Browning, 2022; Arifwidodo & Chandrasiri 2024). A systematic review also emphasized that green space quality and proximity significantly influence mental well-being, particularly during and after the COVID-19 pandemic. During lockdowns, perceived residential green space was inversely associated with anxiety and depression via greater social cohesion and lower pollution exposure.

Extended electronic device usage was common: over two-thirds reported using devices for multiple hours daily, and nearly 70% felt mentally tired afterward. A meta-analysis on social media fatigue found that information overload, FOMO, compulsive use, and psychological stressors significantly predicted fatigue, which in turn increased likelihood of reducing platform use indicating emotional payoffs for disengaging. A study in China similarly linked high social media use among students to sleep disturbance, mental exhaustion, social isolation, and anxiety (Osman 2025).

Social media frequency was high, with over 80% of participants using platforms daily or multiple times. While 71% reported that technology helps them stay connected, a substantial 74% also indicated negative mental health impacts from social media. This duality mirrors research documenting that while social media fosters connection, it also intensifies social comparison, loneliness, and psychological strain (Mechelli *et al.* 2024). Nearly 40% of your sample felt lonely even while

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online a phenomenon consistent with the ―alone together‖ concept, where digital connection fails to substitute emotional closeness, and may even foster isolation (Washington Post 2025).

The tendency to compare oneself to others online was also common, with about 60% affirming they feel worse afterward. Social comparison on platforms predisposes individuals to depressive affect, anxiety, and low self-esteem (Qin et al. 2024). The combined impact of excessive comparison and digital overload reinforces social media fatigue and emotional distress.

Clinical symptom reporting was substantial: roughly two-thirds had experienced prolonged sadness or been diagnosed with depression, and over 70% believed this mental health challenges were influenced by urbanization or technology. These perceptions align with urban mental health frameworks that recognize rapid urban growth and digital saturation as ecological stressors creating mismatches between environment and psychological needs (Osman, 2025; Colleony *et al.* 2023).

Digital fatigue emerged as a core theme: 61.6% reported mental tiredness following extended screen time. This state of ―technostress‖ reflects cognitive overload from constant connectivity, multitasking, and notifications, leading to reduced life satisfaction and attention capacity (Qin *et al.* 2024). Physical symptoms of digital overuse such as eye strain, neck pain, and fatigue have also increased in recent years, particularly among younger populations exposed to prolonged device exposure (Economic Times editorial 2025).

A majority (approximately 76%) said they take deliberate breaks from screens or social media to feel better. This aligns with findings that digital detox interventions ranging from brief screen-free periods to structured abstinence can lower stress, enhance mood, and restore cognitive function (Radtke *et al.* 2022). The fact that many in your sample recognized the need for such breaks suggests emerging self-awareness around digital self-care.

Taken together, the findings underscore a paradox: while urbanization and digital technologies provide connectivity and resources, they also generate stress, burnout, loneliness, and mood disturbances. A significant portion of your sample

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reported both the benefit and burden of digital engagement, reflecting the ambivalent nature of technology in modern life.

These insights suggest that interventions should not demonize technology but rather promote balanced use within healthier urban ecological systems. Policies aimed at increasing access to high-quality green space (within a recommended threshold of 20–30% coverage) can improve social cohesion, reduce loneliness, and moderate stress responses (Feng & Browning 2022; review in Land 2025). Similarly, educational programs encouraging mindful social media use, FOMO management, and digital boundaries can mitigate psychological fatigue and comparison-based distress (Qin *et al.* 2024; Radtke *et al.* 2022).

The high prevalence of mental fatigue, psychological distress, loneliness, and depressive symptoms in your sample highlights the need for integrated urban-digital health strategies. Such strategies could include green prescribing, promotion of digital detox practices, screen-time guidelines, and strengthening accessible mental health services in urban communities. The pattern of voluntarily disconnecting from devices for well-being suggests these strategies would find community resonance.

Overall, the data reflects an urgent need to view urbanization and technology not only as drivers of progress, but also as potential risk factors for mental well-being. As global urban populations grow and digital immersion deepens, public health and planning must evolve to support holistic health including emotional resilience, digital literacy, and access to restorative environments— for a balanced and healthy urban future.

CONCLUSION

The results of the conducted study provide strong arguments regarding the role of urbanization, technology, and social media usage in determining the mental health. The results obtained based on 396 participants give an indication of the modern issues that exist on the effect of the high rate of urbanization and digitalization on the psychological well-being, stress and social functioning of people.

The findings have shown that poetry a large percentage of sample indicated being mentally fatigued due to excessive use of phones or computers. It is in line with emanating studies that indicate the connection between detachment in the online realms and mindfulness overloading because of regular connection and screen

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time. Most of the respondents also reported experiencing stress or anxiousness when in an urban environment and this is consistent with earlier findings that urban living was a factorable stressor and that urban life is characterized by the 3 factors of overstimulation, noise pollution, and social isolation which are all, on their part, stressors that lead to poor mental health.

We are concluded from this research study out of 396 participants

70% reported being affected by anxiety, depression, and sadness, which they associated with digital and urban lifestyle pressures. 30% of the participants stated that they were not significantly affected by anxiety or depression.

The findings suggest that excessive digital engagement and urban stress are linked to negative emotional outcomes and disturbed sleep patterns.

RECOMMENDATIONS

In accordance with the general results, the following points should be mentioned:

- Education on digital literacy and healthy screen time should be an educational goal under the awareness campaign to ensure that the youth know how to use screens healthily, the dangers of social comparison, and the relevance of screen breaks.
- Access to mental health services should be help more accessible and at a more affordable rate especially in the high-density urban environment where people are under more stress.
- More longitudinal and intervention studies are necessary to figure out the causal relationships between the use of technologies, urban stress, and mental health outcomes as well as determine how effective gratitude, mindfulness, and taking digital breaks in terms of coping with stress are.

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