THE LEARNING CURVE

Department of Psychology
Lady Shri Ram College for Women

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AIM & SCOPE: Established in 2012, The Learning Curve is a peer-reviewed, annual journal published by the Department of Psychology, Lady Shri Ram College for Women, University of Delhi. We encourage submissions of papers reporting experimental, theoretical, and applied studies using quantitative, qualitative, and mixed-methods approaches. The journal also welcomes systematic reviews and meta-analyses. It aims to provide a dynamic platform to researchers to present their research work that brings out a novel and significant perspective of looking at important psychological issues. We hope that the articles in the journal will take the field of psychology in unexplored directions and uncharted terrains.

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Prakṛtireva śaraṇam - "Nature is the only refuge":
The role of Environmental Psychology in Saving the Planet

Kanika K. Ahuja[1], Sentisungla Longchar[2] & Megha Dhillon[3]

Abstract: Over the last few decades, humans have plundered nature's resources much faster than they can be replenished. Our tendency to take nature for granted is beginning to create havoc across the world. The current state of affairs is tragic, given India's ancient belief systems that approached nature as a divine entity. This article explores the potential of Environmental psychology in tackling the ecological issues facing us today. Environmental psychology is an interdisciplinary, application-oriented field that focuses on the interplay between individuals and their surroundings. It is directed at enhancing our relationship with the natural environment and making the built spaces that we occupy more humane. Climate change is a pressing concern for environmental psychologists worldwide. Environmental psychology can play a key role in enhancing our comprehension of the actions that contribute to climate change, particularly through the development of behavioural models. It can also enable more informed decisions on how communication methods can be used with the public and offer valuable insights into how people react to various policy measures. A key area for future research is understanding how Indian psychology with its emphasis on the interconnectedness of individuals and environments, indigenous wisdom and spiritual traditions, can be employed to promote sustainability. In some countries, policymakers are regularly seeking guidance from behavioural scientists to develop improved conceptual frameworks and effective implementation strategies to protect the environment. It is becoming increasingly critical to develop such collaborations in India as well. Of course, the foundation for this will come from an augmentation of the full-time courses offered in Indian universities and the creation of employment opportunities for those who pursue environmental psychology.

Keywords: environmental psychology, Indian psychology, climate change, sustainability, pro-environmental behaviour

Poet and scholar Gary Snyder famously said, "Nature is not a place to visit, it is home." Human beings are an extension of the natural world. According to the Yogic theory of Panchmahabhoota, the fundamental structures of all living entities- trees, plants, animals, and humans are made of five elements: Agni (fire), Jal (water), Prithvi (earth), Aakash (ether), and Vayu (air). All the elements present in the Universe are also present in us, and we are indeed one with nature. Greek physician and philosopher Hippocrates ardently believed in nature's ability to heal. The focus on nature as a form of medicine declined in the 20th century, due to the ascent of modern medicine, which based itself on vaccines and antibiotics. However, later, the work of several scholars, such as biologist E.O. Wilson (1984) and Roger Urlich (1984) began to turn things around. Wilson stated that humans are deeply connected to other living beings. Urlich's research in hospitals showed that patients who had natural views from their windows used less pain medication, had fewer post-operative complications, and were discharged sooner than those who did not have such views. Several studies demonstrated the health benefits of spending time in nature to include reduced stress, improvements in immune function, more effective pain control, and lower blood pressure (e.g., Frumkin et al, 2017). Yet those of us residing in cities and towns lose our connection with mother nature. Concrete buildings, steel cars, modern gadgets, and machines overwhelm our senses. Over the last few decades, humans have plundered nature's resources much faster than they can be replenished. Our tendency to take nature and her generosity for granted is beginning to create havoc across the world.

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The Environmental Crisis

According to the World Meteorological Organization, extreme weather events in 2024 have caused the highest number of climate-related displacements in recent times. In the past year, about 800,000 people were displaced, and another 1,700 lost their lives. Economic losses from hurricanes and other natural disasters soared globally. The damage caused by hurricanes Helene and Milton pushed the total economic loss from natural disasters in the U.S. to $217.8 billion. Poorer countries are more severely affected by cyclones, droughts, wildfires, and other disasters due to weaker infrastructure and limited resources for disaster preparedness. India is among the countries struggling to cope with frequent natural disasters affecting different parts of the country. In 2024, Kerala experienced the highest number of fatalities due to extreme weather events, with Madhya Pradesh and Assam following closely behind (Awasthi, 2024).

Air pollution is one of India's most pressing environmental challenges. The 2024 World Air Quality Report states that India is the fifth most polluted nation globally, with 74 out of the 100 most polluted cities situated here. Delhi, India's capital has the worst air quality in the world for several days in a given year. The primary contributors to air pollution include vehicle emissions, construction activities, crop burning, industrial waste, and fossil fuel combustion. India's heavy reliance on coal, oil, and gas results in it being a significant contributor to global pollution, releasing over 2 billion metric tons of carbon dioxide into the atmosphere annually. Air pollution has created high levels of respiratory ailments in the country. Poor air quality worsens conditions such as asthma and COPD and heightens the risks of pneumonia and lung cancer. Levels of water pollution in the country are alarmingly high. Three years ago, the Central Pollution Control Board announced that more than half of India's rivers were polluted. This pollution poses health risks through waterborne diseases and negatively affects freshwater biodiversity and agricultural productivity. The plastic crisis in India ranks among the worst globally, with the country generating over 9 million tons of plastic waste each year. Some factors responsible for high levels of plastic waste include India's massive population, rapid urban expansion, low waste collection rates, inefficient waste management systems, and harmful practices such as open burning. Presently, only about 5% of collected waste is recycled, 18% is composted, and the majority is incinerated (Igini, 2024). The common practice of incinerating waste releases harmful pollutants, including dioxins, into the atmosphere, adding to the already soaring levels of air pollution.

The current state of affairs is tragic, given India's ancient belief systems that approached nature as a divine entity. For centuries, forests and trees have been worshiped here, and the conservation of nature has been an important aspect of the ethics of Indian culture (Anthwal et al., 2010). Sacred groves and forests have been repositories of floral and faunal diversity, sustainably conserved by local communities. Some Indian communities have harvested rainwater for centuries through systems specific to the topography of the given region. The stepwells of Gujarat, the johads of Rajasthan, and the Zabo System of Nagaland are a few examples. Clearly, it is time for us to pay attention to the good practices of the past and take necessary actions that can protect the Earth's future. There has to be an interdisciplinary and multi-dimensional response to the environmental concerns plaguing us. Since the 1990s, countries have debated how to combat global warming. Negotiations have led to various international treaties. Some of the most widely known are the UN Framework Convention of Climate Change (1992), the Kyoto Protocol (1997), and the Paris Agreement (2015). As part of the Paris Agreement, governments set targets with the goals of preventing global average temperatures from rising 2°C above pre-industrial levels and attempting to keep the change below 1.5°C. While governments agree on the reasons for climate change, there are disagreements on who is responsible, how to monitor goal attainment, and how to compensate hard-hit countries. Moreover, USA, the world's second-largest emitter, is the only country to have withdrawn from the agreement twice (Maizland & Fong, 2025).

The Potential of Environmental Psychology

Environmental psychology is an interdisciplinary field that is quickly gaining ground, given the current

ecological crisis. This branch of psychology focuses on the interplay between individuals and their surroundings. Humans are understood to be in transactional relationships with their environments, constantly altering them and, in turn, being influenced by them. The term environment is defined broadly here and encompasses natural environments, built environments, social settings, and digital environments. Environmental psychology is highly application-oriented. Its goal is to enhance our relationship with the natural environment and make the built spaces that we occupy more humane. Climate change is a pressing concern for environmental psychologists worldwide. Many communities have begun to experience disruptions and displacements due to natural disasters and rising water levels. With these developments, the adverse mental health consequences of climate change, like uncertainty, anxiety, and feelings of loss, have begun to come to the fore (Palinkas & Wong, 2020). Eco-anxiety has been increasingly cited as a common response to ecological crises, including climate change. An APA survey published in early 2020 reported that over 50% of participants considered climate change to be the most critical issue today. About 68% of those surveyed said they had "at least a little 'eco-anxiety,'" or anxiety about climate change. Several young adults mentioned feeling stressed over climate change in their everyday lives (Schreiber, 2021).

Contrary to common assumptions, the relationship between environmental attitudes and environmental behaviours has been found to be negligible (Ahuja & Dhillon, 2018). Therefore, an urgent task for practitioners in the field is identifying methods and means to encourage pro-environmental behaviour. So far, research indicates that attempts to promote climate actions can be most efficacious under specific conditions, for example, if they address important antecedents of a person's actions. Personal beliefs and values play important roles in determining climate-related behaviours. Regarding beliefs, individuals are more inclined to participate in climate change mitigation actions and endorse related policies if they perceive climate change as genuine, caused by human activities, and resulting in adverse effects (Val

Valkengoed et al., 2021). Four types of values seem pertinent to ecological behaviour. Two among these-hedonic values and egoistic values inhibit climate change mitigation actions because such actions can involve personal costs, at least in the short term. The other two sets of values- altruistic (e.g., helpful) and biospheric- encourage people to care for the environment. Those with strong biospheric values tend to see climate change as real and believe that their behaviours contribute to it. They are more inclined to support climate policies, practice environmental activism, and boycott companies that harm the environment. Emotions play a part here as well. Holding back from pro-ecological behaviours may elicit negative emotions, like shame. Anticipation of such emotions can foster climate actions. The stronger our biospheric values are, the more likely we are to worry about climate change. This may increase feelings of responsibility to take appropriate action (Bouman et al., 2020). Kurth & Pihkala (2022) believe that eco-anxiety can be conceptualised as a phenomenon that sensitises us to challenging decisions about climate change and brings a certain sense of reflection aimed at helping us deal with the difficulties we encounter. It can be a valuable emotion in the way it motivates us to make better decisions about the environment. However, others have argued that high amounts of eco-anxiety is detrimental to mental health in the form of distress, rumination, somatic disturbances, and hopelessness (O'Brien & Elders, 2021). It can become clinically significant when it becomes hard to manage and impacts one's daily functioning (Clayton, 2020). The main issue with "eco-anxiety" is that it is still a poorly understood concept and warrants further research, especially with the Indian population. The operationalization of the term is still unclear, with varied definitions and terminology being used in research (Coffey et al., 2021).

Social factors play a critical role in shaping ecological behaviours. Research has found people to be more likely to engage in pro-ecological behaviour when they perceive that other members of their group support biospheric values and participate in climate actions too (Bouman, Steg & Zawadzki, 2020). Furthermore, people engage in climate actions when

they think this would demonstrate something positive about them. At workplaces, corporate environmental responsibility can increase employees' motivation to engage in climate actions (Sharpe et al., 2022). Specifically, the more employees feel that their organization contributes to protecting the environment, the more they feel responsible and committed to taking action. The findings have strong implications for designing effective interventions. For example, given the power of social factors, highlighting that most of one's group members care about the environment and act to save it can promote climate actions. It may also be helpful to emphasize that an increasing number of people are starting to adopt the behaviour. Discussions with peers can promote actions by fostering an understanding of novel options and addressing questions about the feasibility of ecological behaviour. Environmental goals set by organizations can motivate employees who are not strongly motivated to protect the environment, as they may embrace organizational goals as their own (Sharpe et al., 2022).

In recent years, studying behavioural policy interventions based on nudges has become increasingly popular. Thaler and Sunstein (2003) define nudges as behavioural interventions that make certain actions more salient. To qualify as a nudge, the designers of the intervention must use only the power of suggestion and offer no economic incentives for compliance with certain behaviours. Chakravarty and Mishra (2019) analysed the results of a field experiment that involved providing an environmental nudge by reinforcing pro-ecological norms. Posters asking people to use a reduced amount of paper were placed on printers and in office cubicles of two IT firms around Delhi. A third firm served as the control and did not get the nudge. During the intervention, employees in offices that received the conservation message used fewer sheets in comparison to the pre-intervention period. Once the nudge was removed, the paper wastage for one firm that received it did not increase significantly over the next month and a half. For the other firm, it did, but was lower than the pre-nudge period. Firms that received nudges demonstrated a reduction in the amount of paper used many weeks after the nudge was removed.

For the firm serving as the control group, the usage or wastage of paper did not change significantly.

Consumer behaviours and household practices are important targets for environmental psychology interventions. As an example, an intervention was designed and implemented in 217 German households to promote the prevention of food wastage (Schmidt, 2016). The intervention was based on a theoretical framework created by the authors using certain perceptual, motivational, and behavioural predictors. It consisted of components such as sharing knowledge, public commitment, and goal setting. The central objective was to prevent food wastage in the homes by altering participants' relevant food behaviours (e.g., planning grocery shopping in advance). The intervention was found to be effective by revealing higher levels of improvement in the experimental group than the control group four weeks after its implementation. Hanss and Bohm (2013) investigated whether the provision of information to consumers about how they can help reduce environmental damage through daily purchasing decisions could strengthen their intent to buy sustainable groceries, promote buying of sustainable groceries, and strengthen self-efficacy in the area of sustainable development. The findings indicated that the intervention worked by augmenting participants' intentions to purchase ecological products and the purchase of such products. Yet effects on self-efficacy beliefs were nonsignificant, indicating the need for more long-term interventions.

The research presented above demonstrates just some of the ways in which environmental psychology can contribute to addressing the climate change crisis and other ecological issues. At the same time, practitioners must realise that several structural and psychological barriers prevent the behaviours that would help. Many people are unaware of the exact nature of the problem. They may not know what to do differently or may discredit experts. Cognitive barriers may include thinking that ecological degradation occurs due to unchangeable factors. A person may come to believe that others should take action or that their own actions will do little to help. He or she may perform certain actions they believe are helpful, but in

reality are not. Lack of time, money, low efficacy, and hopelessness are also commonly acknowledged barriers (Quimby & Angelique, 2011). In a seminal paper, Gifford (2011) suggested that while people do engage in some helpful action, many could do a lot more. Yet they are hindered by seven "dragons of inaction" or psychological barriers which are (i) limited cognition about the issues (ii) problematic worldviews that prevent pro-ecological attitudes and behaviour (iii) comparisons with key others (iv) sunk costs (v) discrediting of experts (vi) perceived risks of change, (vii) inadequate behaviour change. According to Gifford, these barriers can be over-ridden, although it shall take time and persistent effort. Targeted messages, rewards or incentives, strong leadership, improved knowledge of technology, enabling infrastructure, inclusive policies, clear goals, direct feedback, norm-setting, and the spreading of norms through social networks can be immensely useful. However, for long-lasting change, environmental psychologists must work closely with other disciplines, government agencies, and technical experts.

Another key area for future research is understanding how Indian psychology with its emphasis on the interconnectedness of individuals and environments, indigenous wisdom and spiritual traditions, can be employed to promote sustainability. Drawing on the concept of mindfulness, Indian psychology promotes awareness of one's impact on the environment and encourages sustainable consumption along with simple living. Indian traditions are rooted in a deep reverence and consequent sense of responsibility towards the environment. This perspective suggests that sustainability is not just an environmental issue, but a psychological and behavioural one. Recognizing the diversity of Indian cultures, Indian psychology, through approaches like action research, can tailor sustainability interventions to specific contexts and values. Integrating mindfulness and ethical considerations into the Indian educational system can help students develop a deeper understanding of sustainability from a cultural perspective. Engaging key Indian communities in ecological projects can foster a greater sense of ownership and responsibility. Finally, applying Indian psychological principles to organizational culture can promote sustainability within businesses and other institutions.

Conclusion

Environmental psychology can enhance our comprehension of the actions that contribute to climate change, particularly through the development of behavioural models grounded in empirical research. It can also enable more informed decisions on how communication and dissemination methods can be used with the public and offer valuable insights into how people react to various policy measures. The strength of the field lies in its ability to work with various stakeholders and tailor interventions accordingly. This is important because strategies of behaviour change that are effective for large corporations may not necessarily translate well to individuals and households due to factors such as emotional reactions to available choices. Yet, focusing on individuals is crucial, as the success of interventions may depend on their match with the specific traits or habits of individuals. In some countries, policymakers are regularly seeking guidance from behavioural scientists to develop improved conceptual frameworks and effective implementation strategies to protect the environment. It is becoming increasingly critical to develop such collaborations in India as well. Of course, the foundation for this will come from an augmentation of the full-time courses offered in Indian Universities and the creation of employment opportunities for those who pursue environmental psychology.

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The Loss Frame Paradox: Examining the Psychological and Economic Determinants of Tax Compliance in India Through the Lens of Behavioural Nudges

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Abstract: This study examines the intersection of psychological biases and economic behaviour, mainly concentrating on how loss aversion impacts tax compliance in India. The primary research question focuses on the role of perception in tax compliance when taxation is understood as a "loss" rather than a civic duty, which is in line with loss aversion. Secondary questions probe the impact of cultural and socio-economic factors in India that moderate the loss aversion effect on taxation compliance and how some form of nudging behavioural biases can be leveraged for greater compliance. Through a literature review, this research proposes a framework for behavioural nudges, informed by the principles of behavioural economics, that can be adapted to India's diverse demographic and cultural profile. By incorporating psychological heuristics into the design of tax policies and communication strategies, the study highlights the importance of leveraging behavioural insights to create more effective tax strategies that may help reduce tax evasion and promote civic engagement. Given the limited research investigating the psychological determinants that affect tax compliance in India, this study addresses a critical gap in the literature.

Keywords: loss aversion, tax compliance, behavioural nudges, psychological biases, economic psychology

Tax evasion presents a significant fiscal challenge globally, undermining government revenues and constraining public investment. In India, the estimated annual loss due to tax evasion stands at nearly ₹2 lakh crore (Tejaswi, 2024), contributing to persistent fiscal imbalances and limiting the scope of developmental expenditure. The country's vast informal economy—comprising nearly half of its GDP (Dhoot, 2024)—exacerbates this challenge. Many actors, particularly in agriculture and the gig economy, underreport income or operate primarily in cash, making enforcement difficult. Despite ongoing reforms, tax compliance in India remains low (Dhami et al., 2023), prompting a re-evaluation of traditional deterrence-based models. This raises a critical question: What psychological mechanisms, beyond audits and financial penalties, influence taxpayer compliance in India?

One key psychological factor that could deeply influence tax compliance is loss aversion. This central concept of Prospect Theory posits that "losses loom larger than gains of commensurate magnitude" (Kahneman & Tversky, 1979). Given this principle, it is commonly assumed that framing tax payments to avoid financial loss, rather than a contribution to public goods, should encourage compliance. However, a paradox emerges in this context: empirical evidence suggests that while loss-framed messages are often employed as behavioural nudges, they do not always enhance compliance. Instead, in certain socio-economic and institutional contexts, loss framing may reinforce tax resistance, triggering perceptions of unfairness, distrust in the system, and psychological reactance against perceived coercion.

This counterintuitive phenomenon, which we term the "Loss Frame Paradox", refers to the idea that while loss aversion should theoretically deter non-compliance, the very act of framing taxation as a loss can paradoxically lead to lower compliance. This contradiction emerges because taxpayer decisions are not made in isolation. Factors such as perceived fairness, institutional credibility, and broader cultural attitudes toward the state heavily mediate behavioural responses. In contexts where public spending is viewed

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as inefficient or corrupt, citizens may interpret taxes as unjust expropriation. Similarly, individuals under financial duress may perceive tax demands—even when framed as losses—as coercive and punitive. Thus, psychological nudges cannot be treated as universally effective; they are context-bound and shaped by structural realities.

Empirical research in behavioural science underpins this statement. Psychological reactance theory studies indicate that individuals can actively resist persuasive communications if they feel they are being threatened by them and will respond negatively (Miller et al., 2013). When tax messages are framed around loss and delivered coercively, they may induce a reactive resistance that ultimately undermines compliance. While direct empirical evidence on taxation-specific loss framing remains limited, the underlying mechanisms are consistent with broader findings in persuasion and behavioural response theory.

Trust in government institutions is another crucial factor. When institutional trust is low, taxpayers are more likely to view taxes as personal losses rather than contributions to collective welfare (Koumpias et al., 2020; Torgler, 2003). In India, concerns around corruption and public spending inefficiencies have shaped negative perceptions of the tax system. As behavioural economics gains prominence globally, there is still a striking lack of India-focused research exploring how loss aversion functions within such a complex socio-political landscape. While Tandon and Rao (2017) highlight socio-economic and regional variations in tax attitudes, their work calls for further examination of how these variations intersect with psychological motivators like loss aversion.

This paper aims to fill the literature gap on the impact of loss aversion on tax compliance in India by emphasising the special role of communication strategies. Based on this premise, the two research questions include— (1) What is the most viable set of communication strategies that will harness loss aversion to effectively boost tax compliance in India? (2) What are the cultural and socio-economic factors driving the nexus of loss aversion-tax compliance in India? These will be essential in informing proper policy interventions that can minimise tax evasion and enhance compliance.

Loss Aversion and Tax Compliance in India: Understanding the Psychological Phenomenon

The Concept of Loss-Aversion

Loss Aversion, as defined by Kahneman and Tversky (1979) in their seminal work, Prospect Theory, is a psychological principle whereby pain associated with losses is more sensitive than the pleasure associated with equivalent gains. Such emotional dissonance causes individuals to act in ways that could avert perceived losses—even when such actions may not have any economic rationality attached. Taxpayers are likely to be much more sensitive to the perceived loss of money from taxation compared to benefits derived from goods and services through public revenues.

Why Do Taxes Feel Like a Loss—The Indian Context

For most taxpayers, taxes are often perceived as less of a contribution to the public good and more of a loss to personal wealth. In India, these perceptions are compounded by psychological, socio-economic, and institutional factors. A trust deficit in government institutions is one such factor. Studies show that taxpayers in India report a significant loss aversion when they perceive that the tax revenues are misallocated or lack transparency (Torgler, 2003). For example, the overall negative perception of government expenditure, often characterised by corruption and ineffectiveness, contributes to such loss aversion. Therefore, some taxpayers engage in tax evasion as a means of minimising their perceived financial loss (Torgler & Schneider, 2007).

Then comes India's cultural context, intensifying these feelings of loss. Despite India's collectivist social structure, tax compliance is often viewed through an individualistic financial lens, where personal economic survival takes precedence over contributions to the public good. The level of psychological discomfort from the taxation process becomes more difficult from a cultural perspective that foregrounds individual

benefits over public welfare and thereby makes a more emotionally charged issue around tax compliance.

The perception of taxation as a loss is also compounded by India's historical and economic context. A long history of association of taxation with exploitative regimes and economic policies that have left segments of the population disenfranchised has led many citizens to perceive paying taxes as a continuation of this tradition. Under British rule, exploitative taxation mechanisms, such as the *Permanent Settlement* and *Ryotwari system,* disproportionately burdened Indian communities while offering little in return, fostering long-term scepticism toward state-led fiscal policies (Jawad & Shabbir, 2025). After independence, although taxation was conceptualised as a means to economic growth, the convoluted and generally inefficient tax regimes that arose—especially under *Licence Raj*—curtailed economic mobility and cemented bureaucratic rent-seeking (Aghion et al., 2008). Moreover, heterogeneity in the efficiency of taxes between states caused uneven enforcement and compliance costs, further distorting the notion of fairness in the system (Jha et al., 2000). Further recently, India's growing wealth divide and a largely indirect tax-driven tax system have added to the public's distrust as the lower strata of the population disproportionately shoulder the burden of financing, while high-net-worth groups pay relatively low direct taxes (M. Kumar, 2024).

Loss aversion in an Indian context, hence, is not solely a psychological attribute but is essentially embedded in the socio-economic fabric also. Behavioural interventions that concede and address that perception can positively nudge more people toward paying better taxes.

Behavioural Nudges and Tax Compliance: Harnessing Psychological Biases for Enhanced Compliance

The Role of Behavioural Nudges in Tax Compliance

Behavioural nudges are also referred to as subtle interventions into people's behaviour that prompt them toward choices that lie in their best interest. According to Thaler and Sunstein (2008), a nudge is an intervention that takes a person's freedom of choice concerning those he chooses to do but prescribes no action in themselves. In the case of tax compliance, one example might include reframing payment of taxes as the avoidance of loss—a tactic that uses the principle of loss aversion directly.

According to research, loss-framed messages, such as highlighting penalties for non-compliance and the broader social costs of tax evasion, are effective compliance-building nudges (Chetty et al., 2009). These nudges exploit the asymmetry that loss aversion introduces, whereby individuals act in a certain way to avoid the psychological pain ascribed to the loss of money.

Case Studies of Behavioural Nudges in India

The Indian government has designed quite a few programmes that could be termed nudges. A key example is the GST awareness campaign, which used loss-framing strategies to emphasise the consequences of tax evasion and encourage compliance. By emphasising penalties in case of non-compliance and portraying tax evasion as a social loss to the community, the campaign aimed to nudge citizens into voluntary compliance.

Similarly, despite the broader controversy surrounding its economic impact, the 2016 demonetisation was framed as a measure to combat black money, portraying tax non-compliance as a loss to the national economy. This loss-framed narrative worked at different levels to reinforce the concept of compliance as an obligation of the individual and a collective one.

In addition to the GST awareness campaigns and the demonetisation initiative, India has implemented other significant interventions to enhance tax compliance. The Direct Benefit Transfer (DBT) program, launched in 2013, aims to reduce leakage in welfare schemes by transferring subsidies directly to beneficiaries' bank accounts. This initiative not only curbed the diversion of funds but also promoted transparency and accountability in the system

(Barnwal, 2024). For instance, the DBT for Liquefied Petroleum Gas (LPG) subsidies led to cumulative savings of over ₹90,000 crore by removing fake and duplicate beneficiaries (The Times of India, 2018). In the fiscal year 2021-22 alone, governance reforms, including DBT, resulted in savings of ₹50,125.37 crore (Mint, 2023).

Furthermore, the digitalisation of tax processes has played a pivotal role in improving compliance. The adoption of digital tools in tax administration has increased, with 86% of surveyed organisations using automated systems for transactional taxes and compliance. This shift towards digital platforms has streamlined tax filing procedures, reduced compliance costs, and enhanced the efficiency of tax administration. Additionally, the integration of the Public Financial Management System (PFMS) has facilitated real-time tracking of fund transfers, further bolstering transparency and trust in the tax system (Press Information Bureau, 2023).

Global Insights: Comparative Approaches to Behavioural Nudging and Key Lessons for India

International case studies offer critical insights into behavioural interventions for tax compliance. Across jurisdictions, experiments using loss-framed messages, deterrence strategies, social norms, and legitimacy-based approaches have produced varied results. These interventions, grounded in *Prospect Theory* (Kahneman & Tversky, 1979), Social Norms Theory (Cialdini et al., 1991), and the *Legitimacy Model of Compliance* (Tyler, 2014), reveal the psychological drivers of taxpayer behaviour.

In the United Kingdom, Her Majesty's Revenue and Customs (HMRC), in collaboration with the Behavioural Insights Team (BIT), used social norms messaging by stating that "9 out of 10 people in your area have already paid their taxes." This simple intervention increased on-time payments by reinforcing conformity bias—non-compliance was framed as deviant behaviour (Hallsworth et al., 2017). Similarly, in Guatemala, a large-scale randomised controlled trial (RCT) tested behaviourally designed

reminder letters. Taxpayers receiving clear, simplified messages outlining compliance ease and penalties, paid on time more frequently than those receiving generic reminders, demonstrating the impact of salience and deterrence framing (Kettle et al., 2016).

In Latvia, a study comparing deterrence-based versus social norms messaging found that legal consequence framing led to a 9.4% increase in timely tax declarations, whereas social norms messaging primarily improved late compliance rather than on-time payments (Castro & Scartascini, 2015). This reinforces the context-dependent nature of behavioural interventions—what works in one jurisdiction may not necessarily succeed in another.

In Denmark, a study explored the role of moral appeals in tax compliance by sending letters that framed taxation as a means of contributing to public goods. Unlike deterrence-based messages, these moral reminders appealed to intrinsic motivation and civic responsibility, leading to a measurable improvement in compliance rates. This intervention aligns with the legitimacy model of compliance, which posits that individuals are more likely to comply when they perceive taxation as fair and morally justified (Luttmer & Singhal, 2014).

Applying these insights to India necessitates consideration of socio-cultural and institutional dynamics. As Tagat (2019) argues, tax compliance in India is shaped not only by economic rationality but also by trust in government, historical taxation perceptions, and the legitimacy of enforcement. While social norm messaging has been effective in developed economies, India may require a hybrid strategy combining loss-framing with trust-building mechanisms.

Although the GST awareness campaign successfully used loss-framing, its impact was stronger in urban areas, where digital literacy and institutional trust are higher. In rural and semi-urban regions, interventions must blend deterrence strategies with legitimacy-driven communication. Demonstrating how tax revenues directly benefit local communities

(e.g., infrastructure, healthcare, welfare programmes) could reduce perceptions of taxation as an unjust burden. Additionally, leveraging regional influencers, culturally resonant narratives, and community engagement models can foster voluntary compliance, embedding taxpaying as a social norm rather than merely a legal obligation.

Table 1

First and Second Intervention Messages in Global Tax Compliance Programs

Country	First intervention (Baseline)	Second Intervention (Behavioural Nudge applied)
United Kingdom	Standard tax payment reminder	**Social norms messaging:** "9 out of 10 people in your area pay their taxes." → Increased compliance
Guatemala	Generic tax reminder letter	**Simplified + deterrence-based letter:** Clearly stating penalties and ease of compliance →Higher payments
Latvia	Basic compliance notice	**Simplified + deterrence-based letter:** Clearly stating penalties and ease of compliance →Higher payments
Denmark	Standard tax obligation reminder	**Moral appeal messaging:** Highlighting taxes as a contribution to society → Improved voluntary compliance.

The Role of Cultural and Socio-Economic Factors in Tax Compliance

Understanding India's Cultural Landscape in Taxation

India's diverse cultural landscape plays a critical role in shaping tax attitudes. Collectivist norms, especially in rural India, often conflict with the individualistic ethos underpinning modern taxation. Perceptions of fairness, the role of the state, and what constitutes just governance vary across regions and communities, influencing how taxation is internalized.

Regional disparities in taxpayer morale further shape the psychological response to taxation. For instance, Northern India's historical economic volatility and lower trust in institutions correlate with higher non-compliance (Cahyonowati et al., 2023). In contrast, states like Kerala, where governance is relatively transparent, often view taxes as contributing to public welfare, thereby mitigating the psychological burden of payment.

Caste dynamics are another critical, yet underexplored, determinant of tax behaviour. The caste system's historic control over access to resources and opportunity continues to shape fiscal perceptions. Marginalized castes, systematically excluded from public services, may see taxation as unjust and disproportionately burdensome. In contrast, dominant castes with greater economic capital may exploit policy gaps and exemptions (Goraya, 2024), leading to stratified tax morale across groups.

Economic mobility also plays a role. Individuals from low-mobility backgrounds often feel disenfranchised, viewing taxes as mechanisms that entrench rather than alleviate inequality. Yet,

affirmative action policies—such as caste-based reservations—have, in certain regions, improved perceptions of tax fairness and increased voluntary compliance (Darity & Ruiz, 2024). A taxation system perceived as equitable and development-oriented can shift entrenched attitudes, especially among historically excluded populations.

Socio-Economic Determinants of Tax Compliance

Tax compliance in India is deeply shaped by socio-economic disparities, levels of financial literacy, and access to digital infrastructure—all of which are interwoven with behavioural and psychological factors. Drawing from the *Theory of Planned Behaviour* (Ajzen, 1991), individuals' intentions to comply with taxes are influenced by perceived behavioural control, social expectations, and attitudes toward the system. In a structurally unequal economy, these determinants interact in complex ways.

High income inequality, for instance, diminishes perceived fairness. With India's direct tax-to-GDP ratio standing at just 6.64% in 2023 (H. Kumar, 2024), far below the OECD average of 33.9% (Organisation for Economic Co-operation and Development [OECD], 2024), the lower economic strata often perceive the system as regressive. The prevalence of indirect taxation, such as GST, imposes a disproportionate burden on the poor, while wealthier individuals are seen as exploiting tax planning instruments or legal loopholes to minimise liabilities. This perception intensifies loss aversion among economically vulnerable groups, who may view taxation as an added cost that reinforces their marginalisation rather than as a civic responsibility.

Financial literacy emerges as another critical barrier to compliance. A 2020 SEBI survey revealed that only 27% of Indian adults were *financially literate,* with significantly lower rates in rural India (Financial Express, 2020). This lack of knowledge leads to both cognitive overload and a fear of making errors during the filing process. Decision fatigue—a psychological phenomenon where individuals avoid action under complexity—has been shown to reduce voluntary compliance (Ariel, 2012). Without a clear understanding of their obligations or the benefits of paying taxes, many opt for avoidance, often unintentionally.

Compounding this is the complexity of India's tax system. Small businesses, which constitute the bulk of the economy, reportedly spend up to 300 hours annually fulfilling tax obligations—triple the time spent in many developed countries (Statista, 2025b). This high compliance burden increases the perceived cost of honesty and encourages underreporting or non-filing.

Digital access further complicates the picture. While urban India has embraced digital filing—achieving a 90% e-filing rate—rural and semi-urban areas lag, with internet penetration at just 52.4% as of 2024 (Statista, 2025a). According to the *Technology Acceptance Model* (Davis, 1989), perceived ease of use significantly influences technology adoption. For many rural taxpayers, online filing platforms remain intimidating, opaque, or entirely inaccessible. This digital gap fosters dependence on middlemen, increasing compliance costs and opportunities for misreporting.

Government initiatives like the Common Service Centres (CSCs) under Digital India aim to provide assisted e-filing and outreach, but awareness remains patchy. International evidence underscores the potential of behavioural nudges—such as small tax rebates for digital compliance, successfully piloted in Indonesia and Brazil (Bellon et al., 2022) —which India could adapt to its federal and regional structures.

Ultimately, addressing socio-economic barriers requires both structural and behavioural reform. Simplified tax laws, culturally embedded education campaigns, and tech-enabled facilitation can significantly reduce friction. Framing tax as a *social investment* rather than a burden (Tagat, 2019) and reinforcing this message through personalised reminders, default e-filing settings, and social norm cues can make compliance feel less abstract and more aligned with individual and collective benefit.

Political Barriers to Effective Tax Compliance

Political dynamics are a critical, though often understated, determinant of tax compliance in India. Drawing from the *Slippery Slope Framework* (Kirchler et al., 2008), compliance is not merely a function of enforcement but also of the perceived legitimacy of tax authorities. Coercive power—via audits, penalties, or sudden enforcement—can induce short-term compliance, but often at the cost of taxpayer resentment. Legitimate power, grounded in transparency and fairness, is more likely to generate sustainable, voluntary compliance.

In India, aggressive enforcement practices—such as abrupt tax notices or politically selective audits—undermine trust in the system. These episodes foster an adversarial relationship between citizens and the state, reinforcing the belief that taxation is less about civic contribution and more about institutional overreach (Lisi, 2012). The result is a deterioration in tax morale, especially among the middle-income segment, who may already feel overburdened.

System-level resistance to tax reform can also be understood through *System Justification Theory* (Jost & Banaji, 1994), which posits that individuals and institutions often defend existing arrangements, even when suboptimal. India's experience with the 2017 rollout of the Goods and Services Tax (GST) illustrates this vividly. Though originally intended to simplify tax architecture, the reform faced significant resistance from state governments and political actors concerned about revenue losses and fiscal autonomy (Press Trust of India, 2025). As a result, the GST evolved into a multi-tiered structure, complicating compliance and diluting its behavioural and administrative efficacy (Kably, 2024).

Overcoming such barriers requires balancing authority with legitimacy. Simplifying legal codes—such as current efforts to overhaul the Income Tax Act (Adini et al., 2021)—may reduce both compliance costs and institutional friction. More importantly, these reforms should be publicly framed not as technocratic exercises but as efforts to foster fairness, reduce discretion, and empower citizens as stakeholders in the fiscal process. Trust-building must be seen as a behavioural strategy, not just a governance goal.

Communication Strategies to Leverage Loss Aversion

Effective tax compliance messaging must strategically employ penalty-focused and reward-based communication, tailoring interventions to cultural contexts and leveraging public-private collaboration for broader outreach.

Penalty-focused strategies use enforcement mechanisms to highlight potential losses from noncompliance. Publicly disclosing tax defaulters' identities reinforces the risk of legal consequences, amplifying taxpayers' sensitivity to losses. In the United States, publishing lists of delinquent taxpayers and associated penalties has proven effective—a model that could be adapted for India's tax enforcement (Slemrod et al., 2001). Similarly, loss-framed deterrence messages, such as emphasising the risk of penalties, late fees, or legal action, can be reinforced through official tax notices, digital reminders, and mass media campaigns.

Reward-based strategies frame compliance benefits in terms of loss avoidance rather than gain. Early filing rebates or tax refunds can be positioned as preventing unnecessary losses rather than offering financial perks. For instance, presenting tax refunds as "a safeguard against losing eligible savings" rather than a mere financial return can enhance compliance. This approach aligns with behavioural insights demonstrating that people respond more strongly to avoiding losses than to acquiring equivalent gains.

Cultural and demographic differences necessitate localised communication strategies to enhance message receptivity. The effectiveness of tax nudges depends on language, regional influences, and alignment with community values. Messages framed in local dialects, supported by respected regional figures, and contextualised within widely accepted social norms can significantly improve compliance. Moreover, tax

communication campaigns should consider the differing levels of trust in government across urban and rural populations—while urban taxpayers may respond well to loss-framed digital campaigns, rural outreach may require community engagement and trust-building efforts.

Engaging the *private sector* in tax compliance messaging can further amplify its reach. Telecommunications and financial service providers, given their extensive rural networks, can integrate tax reminders within their platforms. Mobile wallet providers and digital payment companies can introduce tax-compliance features and incentives, reinforcing the idea that filing taxes is a modern, streamlined process. Corporations can also contribute through corporate social responsibility (CSR) initiatives, promoting taxation's role in funding public infrastructure, education, and social welfare programs.

Additionally, digital and social media campaigns enhance the effectiveness of loss-framed messaging. Targeted advertisements, leveraging behavioural data from platforms like Facebook, Twitter, and WhatsApp, can emphasise the financial and legal risks of noncompliance. Collaborations between tech firms and government agencies can further refine messaging, tailoring it to specific demographic groups based on online behaviour. Influencer partnerships, particularly with content creators popular among younger demographics, can reinforce tax compliance as a social norm. By embedding tax-paying narratives within culturally relevant content, influencers can foster voluntary compliance by portraying taxation as a responsible civic duty.

A comprehensive approach that integrates *deterrence-based messaging, culturally sensitive communication, private-sector collaboration, and digital outreach* can significantly improve tax compliance in India. By leveraging loss aversion in varied yet contextually relevant ways, policymakers can make taxation not just an obligation but an ingrained social norm.

Synthesizing Policy Recommendations

Improving tax compliance in India requires a multifaceted strategy that blends behavioural insights with institutional and technological reform. A mixed messaging approach—combining both penalties and rewards—can effectively address diverse psychological motivations. Loss-averse individuals respond more strongly to deterrence-based messages that emphasise fines or audits, while gain-oriented taxpayers may be more receptive to incentives such as rebates for timely payments. These strategies should be adapted to India's demographic diversity using regional languages and culturally embedded narratives. For instance, messages about collective welfare may resonate in rural areas, while legal deterrents may prove more effective in urban centres with stronger enforcement visibility.

Beyond messaging, institutional trust must be rebuilt through transparency and accountability. Public dissemination of how tax revenues are allocated—especially toward visible services like infrastructure, health, or education—can alleviate the widespread perception of corruption and mismanagement. Additionally, simplifying tax filing procedures, particularly through accessible digital platforms, reduces cognitive burdens and enhances voluntary compliance.

Digital innovations offer further potential for behavioural nudging. Incorporating gamification features—such as reward points for timely filings or participation in civic tax literacy modules—can increase taxpayer engagement. Automated reminders and user-friendly e-filing systems reduce procrastination and the fear of error, making compliance more intuitive and less stressful.

Over the long term, sustained public education is essential to reshape how taxation is perceived. Campaigns should reframe taxpaying as a civic contribution rather than a financial sacrifice, highlighting its role in national development and improved public goods. Involving local influencers and tailoring messages to specific communities can increase resonance and trust. Ultimately, the effectiveness of

behavioural interventions will depend on their cultural grounding and ability to address both emotional and systemic barriers to compliance.

Conclusion

With reference to the study of the effect of loss aversion on the tax compliance practice in India, this article highlights the impact of a behavioural economics approach toward tax compliance. More importantly, this psychological makeup, which shapes taxpayers' reactions to taxes, is dramatically influenced by the propensity of the populace to fear loss more than appreciating equivalent gains. The psychological bias that encourages tax evasion in India is the notion that paying taxes is a loss rather than a civic obligation.

The article has explored how loss aversion can be effectively used with penalty-based and reward-based strategies for tailored behavioural nudges. It has, however, integrated these nudges into the socio-cultural context of India and has shed light on the importance of regional variations and socio-economic factors in shaping taxpayer attitudes. Lastly, strengthening institutional trust, ensuring transparency, and developing public education campaigns have emerged as critical components of a successful tax compliance strategy.

The article also suggests that gamification and other digital tools can be incorporated into tax systems to make them more simplified and have less burden of compliance. These tactics, in conjunction with more extensive reforms intended to change the nature of taxes, should mitigate the monetary impact of tax evasion and foster an easier, more just taxation system. Ultimately, overcoming psychological barriers to tax compliance in India would greatly enhance the long-term sustainability and success of the country's fiscal policy.

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The Impact Of COVID-19 Pandemic On The Academic Experiences Of Indian School-going Students: A Scoping Review

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Abstract: The COVID-19 pandemic caused unprecedented disruptions in the education sector, significantly impacting the academic experiences of Indian school-going students. This scoping review examines the direct and indirect factors that contributed to challenges encountered by students during the pandemic. A systematic search across PubMed and Scopus identified 367 articles. Following the screening process, a total of 12 articles were analysed. The key themes emerging from the review include challenges posed by technology and online classes, lack of motivation, limited educational resources, self-management difficulties, and emotional distress. Additionally, factors such as the absence of socialization and motivation, increased screen time, and rising reliance on social media were significant contributors to negative academic experiences. The shift to online learning environments intensified pre-existing inequalities, particularly for marginalized and low-income students, amplifying disparities in their educational access. The findings emphasize the need for strengthened mental-health support, integration of cognitive and behavioural skills into curricula, and equitable access to educational resources to address both immediate and long-term difficulties. Consequently, the study calls for future research that prioritises regional and cultural inclusivity to develop strategies that support students' academic recovery and overall well-being. Such efforts are essential in creating a resilient and inclusive educational framework that alleviates the lingering effects of the pandemic.

Keywords: COVID-19, academic experience, online learning, educational challenges, mental-health support.

In December 2019, Wuhan, China, served as the coronavirus disease (COVID-19) epicentre, which rapidly spread worldwide, leading to the global pandemic. According to the World Health Organisation, COVID-19 is an infectious disease resulting from the SARS-CoV-2 virus (World Health Organisation [WHO], 2020). The virus caused millions of cases and fatalities, destroying lives and livelihoods all around the world (WHO, 2020). It wreaked enormous social and psychological effects on individuals and communities, overwhelmed healthcare systems and disrupted economies (Holmes et al., 2020). COVID-19 not only altered the course of history but also the way we live today (Zhu et al., 2020).

The Indian government declared a nationwide lockdown on March 23, 2020, leading to the temporary closure of all educational institutions. According to Dayal and Pratibha (2023), India had the second-longest school closure period, lasting 82 weeks, second

behind Uganda, which lasted 83 weeks. The shutting down of schools disrupted the academic experiences of millions of Indian students. The abrupt transfer from traditional in-person classroom interactions to remote, online learning presented challenges. Students expressed fears and concerns about their academics and reported experiencing stress due to difficulties encountered in adjusting to the prolonged restrictions that came with the pandemic (Chhetri et al., 2021).

The present study focuses on school students, recognizing them as a vulnerable population that has been severely affected by the pandemic. The closure of schools and the sudden shift to online learning during this critical development phase can have long-term impacts on students' academic achievements and their overall growth.

Appropriate provisions must be made in the post-pandemic period, given the pandemic's enduring

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consequences and the apprehensions it has raised about the possibilities of imparting education through innovative methods (Panakaje et al., 2022). SARS-CoV-2 infection has been linked to long-term repercussions, particularly in brain regions associatedwith the olfactory cortex, a modestly accelerated reduction in the overall volume of the brain, and increased cognitive decline (Douaud et al., 2022). This suggests that even mild cases of COVID-19 can lead to long-lasting detrimental effects on brain structure and function. Similarly, the transition to online learning prompted by lockdown measures has shown to adversely affect the academic and cognitive development of students across all age groups (Colvin et al., 2022).

Although online learning was a necessary response to the pandemic, there appears to have been a prominent impact on the academic experiences of the students which cannot be overlooked. Therefore, the current scoping review aims to elucidate the significant factors influencing the academic experiences of school-going students during the pandemic in India with the following objectives:

a) To identify the direct factors affecting the academic experiences of Indian school-going students during COVID-19.

b) To examine the indirect factors influencing the academic performance of Indian school students during the COVID-19.

Methodology

To identify the relevant studies, a scoping review methodology was employed to synthesize existing literature on factors affecting the academic experiences of school-going students during the pandemic in India. The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for scoping reviews to maintain transparency and systematic reporting.

Arksey and O'Malley's (2005) framework, with some modifications proposed by Levac et al. (2010) and Peters et al. (2015) was used. The five-stage approach to conducting a scoping review given by the authors encompasses:
- Identifying the research question
- Identifying relevant studies
- Study selection
- Charting the data
- Collating, summarizing and reporting the results.

Search Strategy

An extensive and systematic search of literature was conducted across two major electronic databases—PubMed and Scopus. The search was performed in August and September 2023. The search strategy combined relevant keywords to ensure the comprehensive retrieval of the research studies.
The keywords and Boolean operators (AND, OR) used were:
- Pandemic-related terms: Coronavirus, COVID-19, COVID-2019, pandemic.
- Academic experience terms: Mathematical abilities, arithmetical abilities, numeracy skills, literacy, academic attainment, education, online education, student performance.
- Population terms: Indian students, school-going children, primary students, secondary school students, higher secondary students.

Study Selection

The initial search yielded 367 articles among which, 304 studies were extracted from PubMed while 63 studies were obtained from Scopus. To ensure the relevance of the studies included, specific inclusion and exclusion criteria were adopted.
The inclusion criteria of the study encompassed peer-reviewed articles published in English between March 2020 and August 2023 that investigated the impact of various factors on academic experiences among Indian students during the pandemic. Further, the research included only the general population of typically developing children who exhibit age appropriate physical, cognitive, social, and emotional changes without any diagnosed neurodevelopmental or psychological disorders. The children were enrolled in either primary, secondary, and/or high school. The focus of the study was on the Indian setting, hence only

articles analysing data from India were included in the study.

Articles were excluded from the study if they: (i) did not assess academic experiences; (ii) consisted of specific sub-groups rather than the general population; (iii) were review articles; or (iv) were unpublished articles, reports, conference proceedings, or case studies.

Figure 1 illustrates the PRISMA Flow chart, depicting the review and selection process of articles for the current study. The initial search yielded 367 articles. These articles were inserted into Covidence for further screening resulting in the removal of 3 articles for duplication. Following this, 364 articles were further screened based on their title and abstracts in accordance with the aforementioned inclusion and exclusion criteria. The process resulted in the retrieval of 38 articles. Of these, 26 articles were excluded during the full text review since they did not meet the selection criteria. Finally, the review resulted in the selection of 12 studies, consistent with the selection criteria and objectives of the current research.

Figure 1

PRISMA Flowchart Illustrating the Review and Selection of Studies
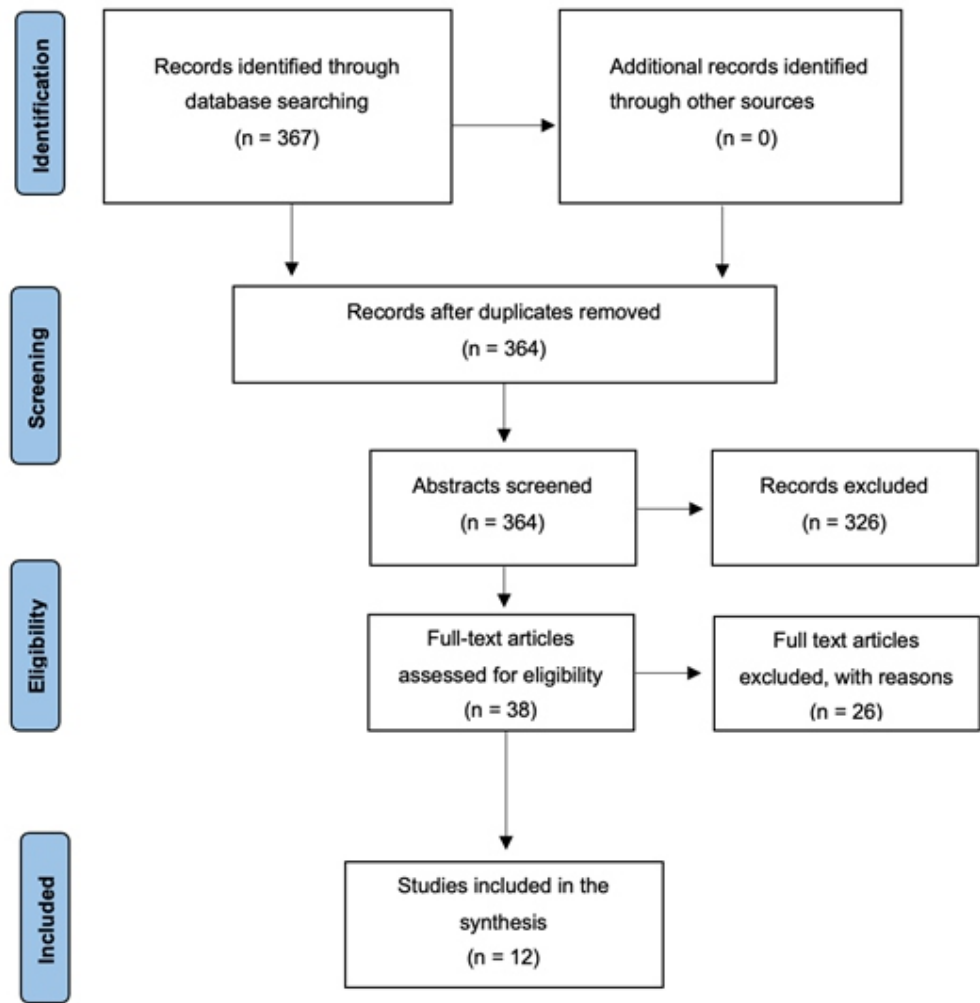
Data Extraction and Analysis

The information extracted from the final 12 articles included— the name and identity of the article, name of the authors, year of publication, the geographic area in which the study was conducted, the timeline of data collection, study design, target population, the sample size, age range of participants, the sample selection criteria, method of data collection, tools/questionnaires used in the studies, the associations with the COVID-19 pandemic in conjunction with academic experiences, the outcomes obtained, statistical analysis, and the main findings reported. The process was carried out by two researchers. Any disagreements were discussed and addressed thorough deliberation to resolve potential discrepancies.

Thematic Synthesis

Data from the 12 studies was analysed through the process of thematic synthesis. The data was reviewed line by line and colour-coded manually to develop analytical themes pertinent to the academic experiences of Indian school-going students. Two reviewers independently carried out the coding process to guarantee consistency and reliability. Similar codes were grouped together into broader categories, thus leading to the development of descriptive themes while remaining authentic to the findings reported in the original studies.

The reviewers then evaluated the descriptive themes to identify overarching patterns and relationships, which were synthesized into broader analytical themes. For instance, findings related to technical glitches during academic activities, lack of awareness of proper technology use, and non-availability of gadgets were synthesized into the theme of "Online classes and technical challenges". Through this process, a total of six themes, or categories, were obtained.

Table 1

Recurring Factors Identified Across the Twelve Studies

Major Categories	Recurring Factors
Online classes and technical challenges	• Online class as a major hurdle. • Lack of proper internet connectivity. • Technical glitches during academic activities. • Differing class schedules. • Network connectivity issues. • Electricity issues/Technical difficulties. • Lack of awareness of proper use of technology. • Failure to accept e-learning. • Insufficient access to high-speed internet services and the absence of technological devices. • Online classes rendered several subjects more difficult than in-person classes. • Negative impact on the mental health of students.
Stress and academic pressure	• High pressure. • Ongoing academic activities leading to stress. • Significant percentage of the sample has high and mild stress. • Fear and worry, in addition to violation of guidelines. • Gender differences: females experienced more stress than males. • Fear of vulnerability.

Self-management and adaptation difficulties	• Increasing number of days in lockdown causing worries about education, growth, and careers. • Stress caused by gradually losing attention in their online classes during confinement. • Non-opening of educational institutions. • Students face self-management problems. • Inability to adapt to the new paradigm of teaching and learning. • In people with anxiety online classes cause mild to severe stress. • Adaptation to chaotic working hours. • Inadequate individual attention. • Delay in response from teachers. • Students did not have enough time to refresh in between classes.
Resource scarcity and lack of motivation	• Lack of proper resources (in institutes). • Students do not find online exams beneficial. • Students tend to take help from online available information to write their tests, making them more casual. • Unavailability of proper mobile network in rural or remote areas. • Increased expenses for the internet. • Non-availability of gadgets. • Sufficient resources, such as smartphones, laptops, and desktops, are not available to attend classes online. • Lack of physical activity.
Increase in social-media and online gaming use	• Heavy usage of social media accounts. • Students get engaged in multiplayer online games, impacting their attention towards online classes. • Students played online games to relieve stress. • Increase in playing time after the lockdown. • Long-term social media use impairs academic performance. • Students who spent more time on social media for academics saw decreased academic performance. • Addiction to phones and laptops at an early age, affected students' eyes and overall health.
Lack of socialization and emotional distress	• Loneliness and sedentary lifestyle. • Parents and students barely interact, leading to feelings of loneliness in students. • Not meeting friends in person affected academic focus. • Lack of face-to-face interactions leading to reduced focus on academics and concentration. • Physical presence of friends and teachers seen as important for enhanced learning, obstructed by online classes.

Results

Characteristics of studies included

The final twelve studies that were included in the review comprised of participants from different regions of India. Herein, the percentage of studies with exclusive representation from various regions encompass— 25% of the

studies focusing on the northern representation, 8% on eastern regions, 17% on the central regions and 50% represented all-India data or did not specify a particular region. The participants were school students between the ages of 6 and 18 years, with a mean age of 14 years and the sample sizes ranged from 101 to 3,120 students.

Figure 2

Pie-Chart Illustrating the Percentage of Studies with Exclusive Representation from Indian Regions
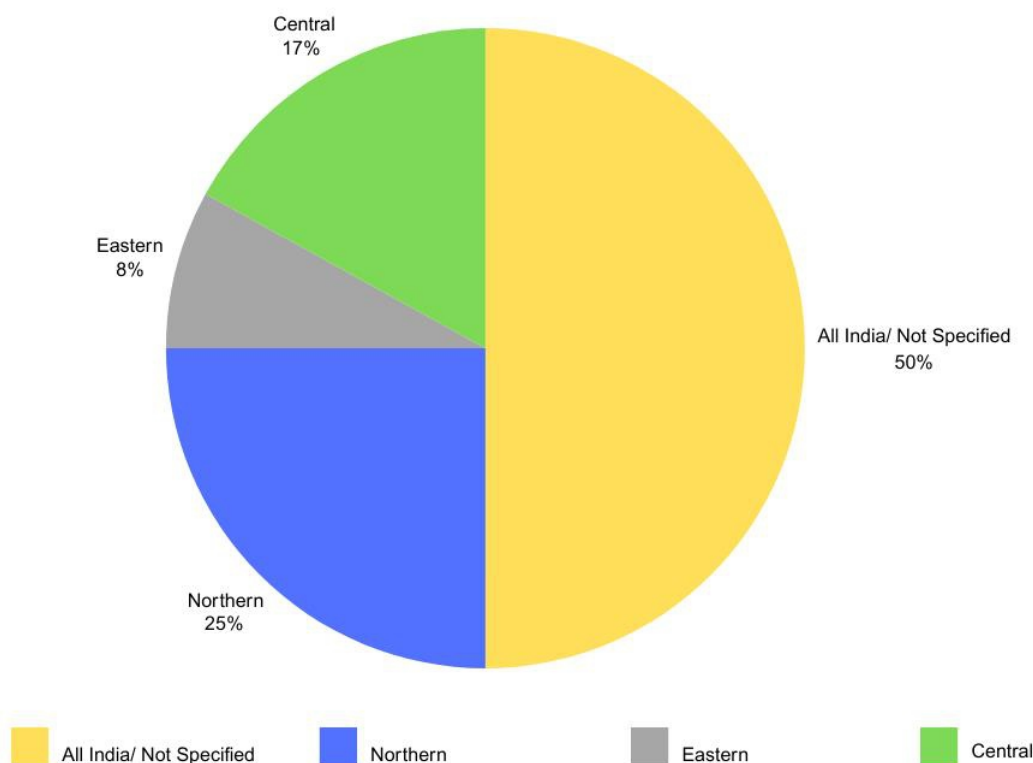
The twelve studies mostly utilised cross-sectional survey methods to investigate school-going students' academic experiences during the pandemic. The primary method of gathering data was online surveys, using tools like Google Forms that were disseminated via email and social media sites like Facebook and WhatsApp (Barupal et al., 2022; Chhetri et al., 2021; Chockalingam et al., 2020; Datta & Kundu, 2021; Kaur et al., 2022; Khattar et al., 2020; Kulkarni & Velhal, 2022; Selvaraj et al., 2021; Yadav, 2021). Offline data collection techniques, like questionnaires and interviews, were employed in certain studies to ensure inclusiveness, particularly in regions with limited access to the internet (Kar & Kar, 2023; Rannaware et al., 2022). Snowball sampling (Chhetri et al., 2021; Datta & Kundu, 2021), convenience sampling (Kaur et al., 2022), simple random sampling (Rannaware et al., 2022), and multistage sampling (Kar & Kar, 2023) were among the strategies used in the studies. Since the included studies had samples from both urban and rural areas it covers students from diverse geographical regions and socio-economic backgrounds in India.

A comprehensive summary of the 12 articles is provided in Table 2.

Table 2

Main Table Summary of the 12 Articles Reviewed

Sr. No.	Author Names (Year of Publication)	Sample Charachteristics	Location of Target Population	Direct Factors Affecting Academic Experiences	Indirect Factors of COVID-19 on Academic Experiences
1	Barupal et al. (2022)	Total: 3120 students. School: 873 students and rest college students	Rajasthan, Delhi, West Bengal, Maharashtra, and Tamil Nadu.	1. Lack of proper resources (in institutes.) 2. Lack of proper internet connectivity. 3. Lack of awareness of proper use of technology. 4. Differing class schedules. 5. Students do not find online exams beneficial. 6. Students tend to take help from online available information to write their tests- making them more casual.	1. Heavy usage of social media accounts. 2. Parents and students barely interact with one another- makes the students feel lonely or alone.
2	Chhetri et al. (2021)	450 students. 35 (15-18) and rest college students	Sikkim, Delhi, Haryana, and other states.	1. Online class as major hurdle. 2. Self-management problems. 3. High pressure. 4. Technical glitches during academic activities. 5. Ongoing academic activities leading to stress. 6. Failure to accept e-learning. 7. Stress is induced by gradually losing attention in their online classes during their confinement period. 8. Unable to adapt to the new paradigm of teaching-learning. 9. Individuals more anxious about studying online experience mild to severe stress. 10. Non-opening of educational institutions.	1. Significant percentage of the sample have high and mild stress. 2. Fear and worries along with violation of guidelines 3. Consuming alcohol and violation of policies. 4. Gender difference: females experienced more stress than males. 5. Essentials like food and medicine. 6. Fear of vulnerability. 7. The increasing frequency of lockdown days, as well as other government regulations, may cause students to feel apprehensive about their education, development, and careers.

3	Chockalingam et al. (2020)	101 school students (18 and below	Not specified.	1. Getting engaged in multiplayer online games: important reason for not giving proper attention towards the online classes.	1. Interaction with friends: through playing online. 2. Played online games to relieve stress. 3. Increase in playing time after the announcement of lockdown.
4	Datta & Kundu (2021)	183 school students (12-17 years	All India.	1. Not meeting friends in person- affected focus on academics. 2. Lack of face-2-face interactions: leading to reduced focus on academics and reduced concentration. 3. Not personally interacting with friends has lowered their focus in interest in academics and concentration. 4. Physical presence of friends in enhancing learning- appreciated as an important factor. 5. Physical presence of a teacher said to enhance learning- obstructed by mere presence of material, video or class on a screen.	1. COVID-19 has altered our regular lives. 2. Adverse effects observed on mental and physical health. 3. A delay in going to bed was discovered during the pandemic lockdown. 4. There was a significant delay in wake-up time during lockdown. 5. Parents' relative tolerance about phone use may be responsible for increased use of social media. 6. A lack of physical exercise. 7. Loneliness and sedentary behavior. 8. Increased screen time.

5	Kar & Kar (2023)	Government school students: 412 Private school students: 405. (12-17 years)	Odisha: Secondary Schools of Bhubaneswar Municipal Corporation region proportionately representing the 3 administrative zones of BMC	2. Low level of acceptance and assimilation of the alternate online mode of teaching. 4. Government schools' students were more affected by COVID-19 than private school students. 5. Students significantly agreed that lockdown had impeded their education. (68.7% in Govt. and 53.9% in Pvt schools.)	1. Students agreed that post pandemic reopening of schools has reduced their stress. 2. Students who practiced COVID-19 appropriate behaviours, significantly felt safer about their schools' preparedness. 3. Students were under stress due the pandemic.
6	Kaur et al. (2022)	277 School students (14-18 years	Jammu and nearby regions	1. The sudden transition to online mode of learning entailed along with difficulties in learning new technology. 2. Difficulty with procurement of e-learning gadgets. 3. Prolonged screen time. 4. School students were affected most with the sudden transition from real physical class-rooms to 'virtual-classrooms' 5. Moderate level of perceived stress	1. Lack of socialisation and sedentary lifestyles. 2. Adaptation to chaotic working hours
7	Khattar et al. (2020)	583 School (Classes 9-12) and college students	Delhi-NCR, Uttar Pradesh, Haryana and various other states and union territories	1. Students have faced significant disruptions in teaching and learning. 2. Key concerns include the unknown timetable of forthcoming examinations, admissions to higher-level courses, and summer internships. 3. Students believe that online teaching can augment classroom instruction, but it cannot	1. Virtual meeting places are not a substitute for personal interactions for young students.

			replace the experience and learning in the classroom, as well as the face-to-face interactions that occur there.	
8	Kulkarni & Velhal (2022)	1103 School students (Class 10)	Western part of Maharashtra state of India.	1. Students were more comfortable with online teaching activities than attending schools.	1. Strong correlation among depression, anxiety and stress scores. 2. Online education may prove to be a risk factor for early obesity and need simultaneous health promotional measures to prevent it. 3. DAS scores were more among girls than boys
9	Mithuna et al. (2022)	368 School students (11-18 years)	Not specified.	1. Long-term ignorant social media use impairs academic performance	1. Students who spent more time on social media for academics, their academic performance decreases. 2. Female participants had the habits of using mobile more than male participants.
10	Rannaware et al. (2022)	Government school students: 81. (Classes 1-7)	Maharashtra: Urban slum areas of Mangalwarpeth, Pune.	1. Increased distraction in surroundings during classes. 2. Non-availability of the resources. 3. Increased expenses over the internet. 4. Decreased peer interaction/ social interaction. 5. Physical discomfort during online classes (burning of eyes, backache, headache.)	1. Increased screen time experienced by most children. 2. Most parents and students do not prefer online classes. 3. The lack of motivation and distractions during classes.

				6. Lack of high-speed internet services and non-availability of gadgets.	
11	Selvaraj et al. (2021)	Sample size unspecified, school students (Classes 1-12.	All India.	1. Network connectivity issues. 2. Electricity issues/Technical difficulties. 3. Less social interactions. 4. Non-availability of gadgets. 5. Inadequate individual attention. 6. Delay in response from teachers. 7. Lack of preparation, a prevalent belief that online sessions are insufficient, and obstacles encountered by teachers owing to student misbehavior may have inhibited successful information transmission. 8. One of the most significant issues continues to be the lack of direct engagement between students and teachers. 9. Online classes have made several things more challenging than in normal classes.	1. Students have reported physical and mental discomforts such as severe headaches, eye strain and irritation, and difficulty concentrating. 2. Regular classes enhance students' ability to clarify their doubts. 3. Most students believed regular classes were more efficient, had more interaction, and provided a better overall comprehension. 4. Students were not given adequate time to rest in between classes.
12	Yadav (2021)	792 students. School students.	Not specified.	1. Online classes create mental pressure on students from government basic school. 2. Sufficient facilities like smartphones, laptops and computers are not available to access online classes.	1. Students' eyesight and health suffered as a result of their early addiction to phones and laptops. 2. The majority of survey respondents believed that

3. Unavailability of proper mobile network in rural or remote areas.
5. Online teaching creating panic among the students
6. Negative impact on the mental health of students.

children from low-income families face emotional stress.
3. Cause of mental stress and other health problems in students at this critical era.
4. Discrimination between wealthy and poor students contributes to disillusionment.
5.Online lessons put extra mental burden on poor students.

Themes

Based on the findings of the present scoping review, it is evident that the transition to online learning due to the pandemic caused a profound impact on the school students. Most studies reviewed emphasized the educational setbacks experienced by the students due to a variety of reasons. There exists a clear preference for the traditional classroom methods that were in place in the pre-pandemic era (Barupal et al., 2022). A new reality has been created by this shift in the way education is delivered, offering students challenges and opportunities in the post pandemic era. While the students have definitely benefitted from increased flexibility in accessing educational resources, removal of geographical barriers, and the comfort of learning from home, it is crucial to acknowledge that school students, being a more vulnerable age group, may struggle to effectively make use of such resources. This challenge is further intensified, taking an emotional toll primarily owing to the difficulties of online learning, including the digital divide (Kaur et al., 2022), lack of supportive services (Kar & Kar, 2023) and the absence of a sense of belonging (Datta & Kundu, 2021) that is typically present in the physical classrooms.

The findings of this scoping review shed light on the complex challenges faced by school-going students in India. Several key patterns emerged across the reviewed studies, and are presented below —

Technical Challenges and Online Classes

For many students the transition to online learning during COVID-19 brought significant technological difficulties. A persistent problem identified by Yadav (2021) and Barupal et al. (2022) was the unreliability of access to technology, particularly for students in the underprivileged and rural areas. The poor access to e-learning platforms, unreliable technology and under-whelming internet connectivity were problems that many students struggled with. In certain instances, students lacked the necessary tools (e.g. smartphones, computers and laptops) to even participate in online classes (Rannaware et al., 2022; Yadav, 2021;).

Given the lack of a physical classroom setting, students perceived online learning to be less effective than traditional in-person teaching processes (Kar & Kar, 2023). Students were less receptive to online learning, with a large percentage (81%) stating that they preferred in-person classroom education (Rannaware et al., 2022). This suggests that students are dissatisfied with and have concerns about the effectiveness of virtual learning.

Stress and Academic Pressure

The shift to online learning was accompanied by significant stress and academic pressure, exerting a

detrimental impact on many students' mental health and their ability to engage in their studies. According to Chhetri et al. (2021), stress levels among students were high because of pandemic-related concerns, including fears about examinations, grades, and their academic future. Furthermore, technical difficulties during exams and academic activities compounded the stress (Selvaraj et al., 2021). This transition caused panic and stress among students.

Students felt that their learning experiences were significantly enhanced by the physical presence of their teachers and peers (Khattar et al., 2020), showcasing the importance of interpersonal interactions. Herein, data indicated a high prevalence of cheating and reduced concentration during online classes.

Further, connectivity issues, technical difficulties, and decreased social interaction were among the obstacles that led to stress and dissatisfaction. Many students believed the preferred pandemic was impeding their studies and a significant majority of students (95%) preferred traditional school-based learning to online education (Selvaraj et al., 2021). Additionally, Datta & Kundu's (2021) study revealed that students' stress levels increased as a result of feeling isolated and disengaged from one another.

Self-Management and Adaptation Difficulties

Following the abrupt shift, students had to develop new self-management and adaptation skills. Many, however, found it extremely difficult to adapt to the new learning environment. Without the regimented school day, students were challenged to to manage time effectively, as noted by Kar and Kar (2023) and Chhetri et al. (2021). The absence of a clear schedule and lack of immediate feedback from teachers made it challenging to stay motivated.

Self-management became hard during the pandemic, resulting in difficulties such a sedentary lifestyle, loneliness, and a lack of physical activity (Datta & Kundu, 2021). This led to disruption in daily routines, further complicating time management and task prioritisation.

Resource Scarcity and Lack of Motivation

One major obstacle to effective online learning was a lack of resources, specifically the restricted availability of devices and reliable internet connectivity. Many students, particularly those from lower-income households, had trouble getting the required technological amenities in both urban and rural areas (Barupal et al., 2022; Yadav, 2021). In remote areas and government schools, the lack of access to dependable smartphones, tablets, and computers proved especially troublesome.

Many students experienced a sense of disengagement due to the switch to virtual learning, finding it difficult to maintain their motivation in the absence of their instructors and peers. According to Rannaware et al. (2022), motivation and academic responsibility were further reduced in online classes due to decreased interaction and increased distractions.

The resource scarcity was compounded by chaotic class schedules, excessive homework and unreliable internet services (Kar & Kar, 2023). Personalized support and student-teacher interactions were crucial for fostering student motivation and academic success. However, structural barriers and unequal access to online learning forced students to face significant educational disparities.

Increase in Social-Media and Online Gaming Use

Social isolation brought on by the pandemic boosted the usage of social media and online gaming as coping mechanisms which distracted students from their studies while serving as a major reason in their failure to pay attention in online classes (Chockalingam et al., 2020). While these platforms helped to alleviate the boredom brought on by the lockdown by offering entertainment and connections to friends and loved ones, extensive screen time and distractions caused academic disengagement. As compared to the pre-COVID era, there was a burgeoning increase in the screentime experienced by 77% of the students (Chockalingam et al., 2020). The prevalence of gadget and online gaming addiction, which increased during the pandemic had a significant impact on students'

academic performance (Mithuna et al., 2022).

Lack of Socialization and Emotional Distress

A significant consequence of the shift to online learning was the absence of socialisation which caused a damaging impact on students' emotional well-being. The absence of everyday peer interactions and social support networks intensified feelings of alienation and detachment among the students (Datta & Kundu, 2021). Research by Kar and Kar (2023) and Chhetri et al. (2021) highlighted how the lack of social engagement during the pandemic negatively affected students' mental health, with many reporting increased feelings of worry, sadness, and anxiety. Moreover, limited social connections, reduced physical activity and increased screen time contributed to physical and psychological distress for students during.

Discussion

This scoping review examined the factors affecting students' academic experiences during the pandemic. The themes identified included reduced socialisation, stress, technical difficulties, and resource scarcity. These challenges extended beyond the pandemic period, exerting a long-term impact on the students' academic and personal well-being. The disruption to traditional learning systems triggered physical, mental and behavioural difficulties that continue to shape and dictate school students' trajectories.

Owing to increased screen time and inadequate ergonomic setups, students experienced severe physical side effects including headaches, backaches (Barupal et al., 2022). Disturbed sleep habits, including delayed bedtimes and lower-quality sleep led to fatigue and difficulty focusing on academics (Datta & Kundu, 2021).

Significant effects of the pandemic were also seen in students' mental health, with some exhibiting symptoms of post-traumatic stress disorder and others experiencing anxiety, stress, depression, and anger (Chhetri et al., 2021). While the worries about academic growth and career prospects have increased anxiety, prolonged stress exposure has been associated with chronic psychological problems (Selvaraj et al., 2021; Yadav, 2021).

Among younger children, behavioural and social changes were particularly apparent. Overuse of devices increased the prevalence of screen addiction in children under the age of 14, while behavioural problems were made worse by peer pressure, substance misuse, and unsupervised activities (Selvaraj et al., 2021; Yadav, 2021;).

Students from low socio-economic backgrounds faced amplified difficulties due to economic instability and limited access to technology, which reduced their motivation and worsened educational disparities (Rannaware et al., 2022). While it is important to consider that some students demonstrated adaptability and flexibility by developing their digital skills and resilience, these advantages have been unfortunately outweighed by the pervasive and long-lasting challenges that still surface.

The findings of this review align with India's National Education Policy (NEP), which promotes flexible education models, digital literacy and hybrid learning. Although the NEP provides certain potential solutions to the academic disruptions caused by the pandemic, its efficacy is contingent upon addressing socioeconomic disparities and gaps in digital accessibility (Roy & Sharma, 2023). Herein, the policy's emphasis on technology-driven education must be integrated with effective mental health programs and teacher training initiatives to mitigate adverse consequences outlined in this study.

A key takeaway from the pandemic is the necessity of a flexible educational system that can combine online and in-person instruction effectively. The rapid transition to digital platforms highlighted both the strengths and weaknesses of online education. Therefore, future policies must incorporate blended learning strategies to ensure that online education compliments traditional methods rather than replacing them.

Conclusion

The current scoping review gives a thorough picture of the various facets causing disruption in the academic experiences of Indian school-going students during and beyond the pandemic.

There is a large gap in literature regarding the academic experiences of Indian school going students. By addressing several crucial elements such as technological challenges, mental and physical health issues, disrupted routines, socioeconomic disparities and profound impact on students' academic engagement, this review sought to bridge that gap. The shift to virtual learning led to physical discomfort, emotional distress, and behavioural changes, with marginalized groups facing greater setbacks due to financial and resource constraints.

The pandemic left an indelible mark on the vulnerable school student population who continue to grapple with its lingering effects. The post-pandemic era has seen the emergence of hybrid learning as a viable option, offering flexibility, comfort and new pedagogical tools. However, the findings reveal a clear preference for in-person classroom learning which is essential for students to develop the necessary skills required for real-world challenges and to continually acquire practical knowledge that the traditional classroom experiences offer.

This review highlights the necessity of pragmatic measures that institutions, educators, and policymakers may implement. By improving digital accessibility, offering students structured mental health services and integrating digital learning resources with in-person instructions, schools should focus on developing hybrid models of learning. In addition, the government and education policymakers must take measures to bridge the digital divide so that students from disadvantaged backgrounds have the necessary resources required to engage in both online and offline learning.

Furthermore, to actively engage students and promote better academic performance, face-to-face communication, hands-on learning opportunities, and direct interactions with peers and teachers are essential. Ensuring equitable access to educational resources, integrating cognitive and behavioural skills development into school curricula, and giving mental health care top priority are essential to address the pandemic's long-term consequences. This review does, however, recognise certain limitations, including the small body of research on the academic experiences of Indian schoolchildren and the regional disparities, with most studies focusing on North India. This lack of comprehensive representation makes it difficult to capture the diverse challenges encountered by students across various cultural and regional contexts. Future research must address such methodological and regional variations to offer a more comprehensive picture of the ongoing academic challenges in the post-COVID era.

It is imperative to strengthen mental health programs and support systems in educational institutions. The nation needs policies that promote stress-free learning and prioritize the mental health of students by providing them the resources they need to improve their overall well-being and academic experiences.

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Evaluating the Impact of Mindfulness Practices on Depression, Anxiety, and Stress in Geriatric Populations: A Randomised Control Trial

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Abstract: Mindfulness practices have gained recognition as effective interventions for addressing psychological challenges in geriatric populations, particularly for reducing depression, anxiety, and stress. This study evaluates the impact of mindfulness-based practices through a randomized control trial conducted with 150 geriatric participants aged 60–75 years. Participants were randomly assigned to three groups: a mindfulness intervention group, a recreational activity control group, and a waitlist control group. The 10-week mindfulness program, involving guided meditation, body scan techniques, and mindful breathing exercises delivered bi-weekly, demonstrated significant reductions in depression (Cohen's $d = 0.85$), anxiety (Cohen's $d = 0.80$), and stress (Cohen's $d = 0.78$) compared to the control groups. Outcomes were assessed using the Depression, Anxiety, and Stress Scale (DASS-21) at baseline and post-intervention. These findings underscore the potential of mindfulness practices as a non-pharmacological, scalable intervention to enhance mental well-being among older adults. Future research should explore the long-term sustainability of these outcomes and investigate technological solutions to improve accessibility.

Keywords: mindfulness practices, geriatric populations, randomized control trial, depression, anxiety, stress.

Aging is a complex process that brings significant psychological and physiological challenges, making older adults particularly vulnerable to mental health conditions. Depression, anxiety, and stress are among the most commonly reported concerns in geriatric populations, exacerbated by factors such as declining physical health, social isolation, and major life transitions (Das et al., 2024; Yuan et al., 2023). Research indicates that untreated mental health conditions can severely impact quality of life, increase susceptibility to chronic illnesses, and contribute to higher mortality rates (Corneliusson et al., 2024). Given the growing global geriatric population, the demand for effective mental health interventions is increasing.

By 2050, individuals aged 60 and above are projected to comprise over 20% of the global population, a figure that has doubled in recent decades (United Nations, 2023). In India, the older population is expected to rise from 153 million in 2023 to 347 million by 2050, posing significant challenges for healthcare and mental health services (National Statistical Office, 2023). Despite advances in medical treatment, there remains a lack of accessible and effective psychological interventions tailored to the older population, particularly those experiencing subthreshold depression and anxiety that may not require medication but still impair well-being.

Mindfulness practices have emerged as a promising non-pharmacological intervention for mental health improvement. Rooted in Buddhist traditions, mindfulness emphasizes present-moment awareness, non-judgmental observation of thoughts and emotions, and self-compassion. Mindfulness-based interventions (MBIs) have been widely used to alleviate psychological distress, enhance cognitive flexibility, and promote emotional regulation (Jane & Suyasa, 2025; Zhang et al., 2021). Research suggests that mindfulness is not only beneficial for individuals with mental health issues but also enhances subjective well-being, particularly in populations that provide care for older adults (Jane & Suyasa, 2025). Among structured MBIs, Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT) have been the most extensively researched.

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MBSR, developed by Jon Kabat-Zinn in 1979, integrates mindfulness meditation and body awareness techniques to reduce stress and promote well-being. Studies have demonstrated that MBSR significantly reduces symptoms of depression and anxiety in older adults by fostering greater emotional regulation and reducing physiological stress responses (Gu et al., 2015; Li & Bressington, 2019).

MBCT, developed by Segal et al. (2002), combines mindfulness techniques with elements of cognitive therapy to prevent depressive relapse. Research suggests that MBCT is particularly effective in reducing negative thought patterns and cognitive distortions, which are prevalent among geriatric individuals with recurrent depressive symptoms (Lindayani et al., 2020; Sanchez-Lara et al., 2022).

Although MBSR and MBCT have established effectiveness in mental health treatment, most studies focus on clinical populations with diagnosed depression or anxiety. Less attention has been given to the effectiveness of general mindfulness practices in non-clinical geriatric populations, particularly for simultaneously alleviating depression, anxiety, and stress. Given the need for scalable interventions that can be applied in diverse community settings, broader mindfulness-based programs that incorporate accessible techniques such as guided meditation, mindful breathing, and body awareness exercises require further investigation.

Additionally, narrative-based and strength-focused approaches are gaining attention as complementary techniques to mindfulness in geriatric mental health care (Zhu et al., 2025). Strength-Based Narrative Therapy has shown promising results in reducing depression symptoms and improving quality of life in older populations, which aligns with the principles of mindfulness-based interventions.

This study aims to bridge the gap in the literature by evaluating the effectiveness of a 10-week mindfulness program in reducing depression, anxiety, and stress in geriatric populations through a randomized control trial (RCT). The findings contribute to the growing body of research supporting mindfulness as a cost-effective, accessible intervention for improving psychological well-being in older adults. Additionally,

the study explores how mindfulness can be adapted for diverse cultural settings, making it a feasible strategy for community-based mental health programs targeting geriatric populations.

Research Hypotheses

Null Hypothesis (H_0): There will be no significant difference in depression, anxiety, and stress levels among geriatric participants across the mindfulness, recreational, and waitlist groups.

Methodology

Participants

This study recruited 150 geriatric participants aged 60–75 years from urban community centers and healthcare facilities. Participants were screened for mild to moderate symptoms of depression, anxiety, or stress using the Depression, Anxiety, and Stress Scale (DASS-21). Inclusion criteria required participants to have a DASS-21 total score between 10 and 40 and be free of severe cognitive impairment or diagnosed psychiatric conditions. Individuals undergoing concurrent psychological interventions were excluded. All participants were provided written informed consent before enrolment.

Study Design

This research employed a parallel randomized controlled trial (RCT) design, where participants were randomly assigned to one of three groups. The Mindfulness Intervention Group ($n = 51$) engaged in a structured 10-week mindfulness program. The Recreational Activity Control Group ($n = 51$) participated in non-mindfulness-based activities, such as storytelling or art sessions. The Waitlist Control Group ($n = 50$) received no intervention during the study but were offered the mindfulness program after its completion.

The Recreational Activity Group (RAG) was included to distinguish the unique effects of mindfulness-based practices from general engagement and social interaction. Research suggests that participation in structured recreational activities, such as art sessions or storytelling, can enhance well-being and reduce psychological distress in older adults

(Sabharwal & Sood, 2025). However, these activities primarily provide temporary relief through distraction and social interaction rather than promoting long-term cognitive restructuring or emotional regulation (Sanchez-Lara et al., 2022). Including this group allows for a comparative evaluation of whether mindfulness offers additional benefits beyond social engagement alone. The randomization was performed using computer-generated random numbers, ensuring allocation concealment.

Instruments and Measures

Depression, Anxiety, and Stress Scale (DASS-21).
The DASS-21 (Lovibond & Lovibond, 1995) is a validated self-report questionnaire used to assess symptoms of depression, anxiety, and stress. It consists of 21 items, divided into three subscales:
Depression: Measures dysphoria, hopelessness, and lack of interest.
Anxiety: Assesses autonomic arousal, situational anxiety, and fear.
Stress: Evaluates chronic tension, irritability, and overreaction to stressful events.

The DASS-21 demonstrated high reliability, with Cronbach's alpha for each subscale ranging from 0.81 to 0.91, indicating strong internal consistency (Chen et al., 2025). Its validity was supported by strong correlations with other clinical assessments, such as the Beck Depression Inventory (BDI) and the State-Trait Anxiety Inventory (STAI), establishing convergent validity (Sheng et al., 2025).

To assess changes in participants' psychological distress, the DASS-21 was administered both pre- and post-intervention.

10-Week Mindfulness Intervention Plan

To align with evidence-based mindfulness training models, the sequence of activities was adjusted following established practices (Kabat-Zinn, 1990; Zhu et al., 2025). The structured 10-week intervention (Table 1) included bi-weekly sessions (90 minutes each), guided by trained mindfulness instructors.

Table 1

Overview of the 10-Week Mindfulness Intervention Plan

Week	Focus Area	Activities
Week-1	Introduction to mindfulness	Overview of mindfulness, guided awareness exercises, and breath-focused meditation.
Week-2	Body awareness	Body scan meditation to enhance connection with physical sensations.
Week-3	Mindful breathing	Deep breathing techniques to regulate emotions and stress responses.
Week-4	Mindful movement	Gentle mindful walking and stretching to develop awareness through movement.
Week-5	Emotional regulation	Observing emotions non-judgmentally, managing negative thought patterns.
Week-6	Self-compassion and gratitude	Loving-kindness meditation, gratitude reflection practices.
Week-7	Stress management	Responding to stress mindfully, structured relaxation techniques.
Week-8	Mindfulness in daily life	Applying mindfulness to daily routines such as eating, walking, and social interactions.
Week-9	Cognitive awareness	Observing cognitive distortions, detaching from negative thought loops.
Week-10	Reflection and future practice	Reviewing progress, developing sustainable mindfulness routines.

Participants were encouraged to practice daily guided meditations at home (10–15 minutes) using audio recordings provided by the research team.

Procedure

Participants completed the DASS-21 questionnaire at baseline as part of the pre-assessment. During the intervention phase, they attended 20 sessions over 10 weeks according to their assigned group. At Week 10, all participants completed the DASS-21 again to measure the effects of the intervention. Additionally, an optional follow-up survey was conducted three months later with the available participants to assess the long-term benefits of mindfulness.

Statistical Analysis

The data were analysed using SPSS (version 29.0) following standard statistical protocols. Within-group analysis was conducted using paired t-tests to compare pre- and post-intervention scores for each group. For between-group analysis, a one-way ANOVA was performed to examine differences in depression, anxiety, and stress across groups, followed by post-hoc Tukey's tests to determine pairwise differences. Effect sizes were measured using Cohen's d to assess intervention effectiveness, and a statistical power analysis $(1 - \beta = 0.80)$ was conducted to ensure sample adequacy.

Ethical Considerations

The study was conducted in accordance with the Declaration of Helsinki (World Medical Association, 2013) and received approval from the Institutional Ethics Review Board. Participants were assured of confidentiality, with data anonymized using participant ID codes. They were also informed of their right to withdraw from the study at any stage without consequence. To ensure that no harm came to the participants, a trained psychologist was available to provide emotional support if needed.

Results

A total of 152 participants were assessed for eligibility, of which 144 participants met the inclusion criteria and were randomized into three groups, with an equal distribution of 48 participants in each: the Mindfulness Intervention Group, the Recreational Activity Group, and the Waitlist Control Group. Each group had a similar gender distribution, with 22 males and 26 females in the Mindfulness group, 21 males and 27 females in the Recreational group, and 23 males and 25 females in the Waitlist group. There was no significant difference in gender distribution across these groups $(F(2,141)= 0.17, p=.92)$.

A CONSORT flow diagram (Figure 1) illustrating participant recruitment, allocation, and retention is provided below.

Figure 1

CONSORT Flow Diagram of Participant Progress
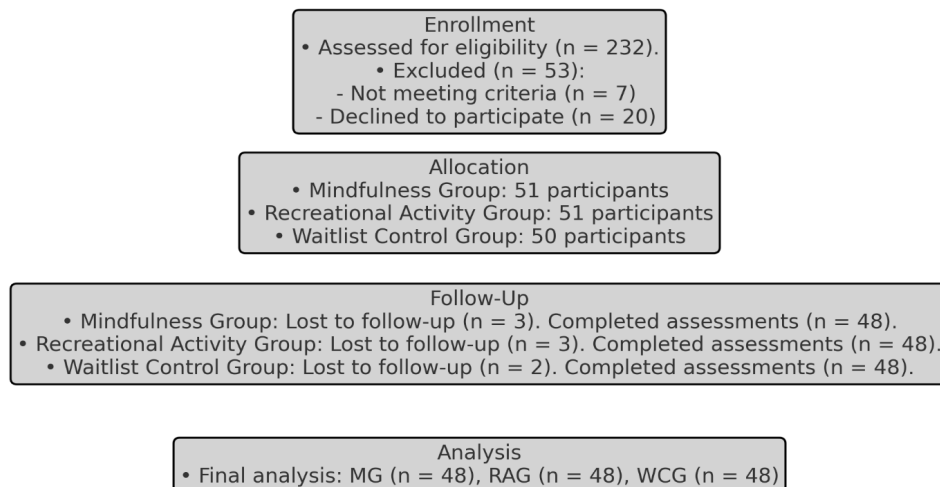
Baseline Characteristics

A one-way analysis of variance (ANOVA) was conducted to assess whether the three groups (Mindfulness, Recreational Activity, and Waitlist Control) were comparable on key baseline characteristics, including age and pre-intervention scores for depression, anxiety, and stress. The results indicated no statistically significant differences among the groups in age (F(2,141)= 0.05, p=.88), baseline depression scores, (F(2,141)= 0.25, p=.81), baseline anxiety scores (F(2,141)=0.12, p=.85), or baseline stress scores (F(2,141)=0.09, p=.89).

Table 2

Baseline Characteristics of Study Participants

Variable	Mindfulness (n=48)		Recreational (n=48)		Waitlist (n=48)		F(2,141)	p
	M	SD	M	SD	M	SD		
Age	67.2	4.5	66.9	5.1	67.1	4.8	0.05	0.88
Depression (Pre)	14.2	2.1	14.5	2.0	14.3	2.2	0.25	0.81
Anxiety (Pre)	12.8	1.9	12.7	2.1	12.6	2.0	0.12	0.85
Stress (Pre)	15.0	2.3	15.2	2.1	15.1	2.4	0.09	0.89

To assess the impact of mindfulness on depression, anxiety, and stress, paired t-tests were conducted within each group (see Table 3). The Mindfulness Intervention Group showed significant reductions in all three measures of depression (t(47) = 5.83, p = .009), anxiety (t(47) = 6.10, p = .007), and stress (t(47) = 5.98, p <.001). The Recreational Activity Group showed moderate reductions in depression (t(47) = 2.32, p = .048) and stress (t(47) = 2.50, p = .031) but no significant change in anxiety (t(47) = 1.20, p = .162). The Waitlist Control Group showed no significant changes in depression (t(47) = 0.68, p = .275), anxiety (t(47) = 0.67, p = .310), or stress (t(47) = 0.72, p = .420).

Table 3

Pre- and Post-Intervention Depression, Anxiety, and Stress Scores

Group	Depression				Anxiety				Stress			
	Pre	Post	t	p	Pre	Post	t	p	Pre	Post	t	p
Mindfulness	14.2	8.5	5.83	.009	12.8	7.4	6.10	.007	15.0	9.0	5.98	<.001
Recreational	14.5	12.5	2.32	.048	12.7	11.9	1.20	.162	15.2	13.8	2.50	.031
Waitlist	14.3	14.1	0.68	.275	12.6	12.5	0.67	.310	15.1	15.0	0.72	.420

A one-way ANOVA revealed a significant difference between the three groups on depression (F(2, 141) =12.45, p < .001), anxiety (F(2, 141) = 15.32, p < .001), and stress (F(2, 141) = 14.87, p < .001) as shown in Table 4. Post hoc Tukey's HSD tests indicated that the Mindfulness Group showed significantly greater improvements compared to the Recreational Activity Group in depression (p = .042), anxiety (p = .031), and stress (p = .018). Similarly, the Mindfulness Group exhibited significantly greater improvements on measures of depression (p < .001), anxiety (p < .001), and stress (p < .001) as compared to the waitlist control group (see Table 5).

Table 4

Between-Group Comparisons of Depression, Anxiety, and Stress (ANOVA Results)

Variable	$F(2,141)$	p	Effect Size (η^2)
Depression	12.45	<.001	0.28
Anxiety	15.32	<.001	0.31
Stress	14.87	<.001	0.30

Note. Effect size interpretation (Cohen, 1988): $\eta^2 = 0.01 \rightarrow$ Small, $\eta^2 = 0.06 \rightarrow$ Medium, $\eta^2 \geq 0.14 \rightarrow$ Large

Table 5

Post Hoc Pairwise Comparisons of Depression, Anxiety, and Stress (Tukey's HSD Test)

Comparison	Depression	Anxiety	Stress
Mindfulness Vs Recreational	0.042	0.031	0.018
Mindfulness Vs Waitlist	< .001	< .001	< .001
Recreational Vs Waitlist	0.12	0.28	0.15

Cohen's *d* values were computed to measure intervention effectiveness. All three variables demonstrated large effect sizes, reinforcing the intervention's impact. Statistical power (1-β = 0.82) confirmed that the sample size was adequate for detecting meaningful differences (Table 6).

Table 6

Effect Size (Cohen's d) and Statistical Power Analysis

Variable	Cohen's d	Statistical Power (1-β))
Depression	0.85	0.82
Anxiety	0.80	0.82
Stress	0.78	0.82

Discussion

The present study aimed to examine the impact of mindfulness practices on depression, anxiety, and stress in geriatric populations by comparing mindfulness intervention with recreational activities and a waitlist control group. The findings indicate that mindfulness practices significantly reduced depression, anxiety, and stress levels, whereas recreational activities led to moderate reductions in depression and stress but had no significant effect on anxiety.

These findings align with prior research that highlights the role of mindfulness in enhancing emotional regulation, reducing rumination, and promoting cognitive flexibility (Sanchez-Lara et al., 2022). The results are also consistent with previous studies demonstrating the efficacy of mindfulness-based interventions in older adults (Jane & Suyasa, 2025). Additionally, our findings align with those of Zhu et al. (2025), who reported that mindfulness techniques are particularly effective in reducing stress and depressive symptoms but require long-term engagement for sustained anxiety reduction.

Mindfulness operates through several psychological and neurological mechanisms that explain its effectiveness in reducing distress among older adults. Mindfulness fosters non-reactivity to thoughts and emotions, reducing rumination and negative self-referential thinking, which are key contributors to depression (Jane & Suyasa, 2025). By training participants to observe thoughts non-judgmentally, mindfulness weakens maladaptive cognitive patterns associated with anxiety (Chen et al., 2025). Neurologically, mindfulness activates the prefrontal cortex and reduces amygdala hyperactivity, promoting greater emotional stability and stress resilience (Chen et al., 2025). This aligns with the decreased anxiety, depression, and stress scores observed in the Mindfulness Group.

Previous studies have extensively examined MBSR and MBCT, but limited research has compared mindfulness practices with non-mindfulness-based recreational activities. This study uniquely contributes by evaluating whether a multimodal mindfulness intervention differs in effectiveness from recreational activities, such as leisure-based social interactions and hobby-based engagement. By doing so, it broadens the scope of mindfulness research and provides empirical evidence supporting its efficacy as an alternative to recreational activities for reducing depression, anxiety, and stress in geriatric populations.

While mindfulness led to significant reductions in all three psychological domains, the Recreational Activity Group (RAG) showed only moderate improvements in depression and stress but no significant reduction in anxiety. This suggests that while social and recreational activities can enhance mood and reduce stress levels, they do not necessarily improve emotional regulation in the way mindfulness does (Sabharwal & Sood, 2025; Sanchez-Lara et al., 2022). This highlights a critical distinction between general engagement-based interventions and structured mindfulness training.

Clinical Implications

The findings of this study have important implications for geriatric mental health care, particularly in integrating mindfulness as an effective intervention for reducing psychological distress in older adults. As a low-cost and non-invasive practice, mindfulness is highly scalable and accessible, making it a viable option for community mental health programs and elder care facilities. Given that anxiety did not significantly improve in the Recreational Activity Group, interventions that directly target cognitive restructuring, such as mindfulness or cognitive-behavioral therapy (CBT), may be more effective in managing anxiety among older adults (Koder et al., 2025).

Additionally, its effectiveness in reducing depression, anxiety, and stress suggests that it can be integrated with cognitive-behavioral therapy (CBT) to enhance treatment outcomes, providing a more comprehensive approach to managing psychological distress. Beyond its therapeutic benefits, mindfulness also holds preventive potential, as it helps reduce stress before it escalates into clinical anxiety or depression. This makes it a valuable tool for promoting long-term mental well-being among older individuals.

Limitations and Future Research Directions

Despite the promising results, this study has certain limitations that should be acknowledged. First, the sample size was relatively small, limiting the generalizability of findings to diverse geriatric populations. Future research should incorporate larger, more diverse samples to examine potential cultural and demographic influences on mindfulness outcomes. Second, while the study followed a 10-week intervention, the long-term effects of mindfulness on psychological well-being remain uncertain. Longitudinal studies are necessary to assess whether the benefits persist over time and whether participants continue practicing mindfulness independently. Further, future research should also explore hybrid interventions that integrate mindfulness with other evidence-based approaches to maximize therapeutic benefits.

Conclusion

The objective of the study was to evaluate the impact of mindfulness practices on depression, anxiety, and stress in geriatric populations. The study provides compelling evidence that mindfulness is a highly effective intervention for reducing depression, anxiety, and stress in geriatric populations. These findings support the integration of mindfulness into elder care programs as a cost-effective, scalable intervention. Future studies should investigate the long-term sustainability of mindfulness benefits and explore its integration with existing mental health interventions.

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Psychosocial Determinants of Substance Use:
South Asia vs. Europe

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Abstract : This systematic review explores the psychological and socio-demographic determinants of psychoactive substance use in South Asian and European countries in the last decade (2014-24). It synthesizes 42 eligible articles identified from databases namely Pubmed, Pubmed Central, BMC Public Health, Google Scholar and Science Direct, following strict inclusion and exclusion criteria. The findings are categorized into five themes: children and adolescents, college students, clinical populations, general populations, and other populations including prisoners, healthcare workers, and Intimate Partner Violence (IPV) victims. The key similarities observed are the effects of peer influence and socio-economic factors among all the populations. Differences in psychological traits appeared in regional emphasis. South Asian studies highlighted family structures, socio-economic challenges, and digital technology use, while European studies emphasized psychological traits and public health policies. Substance use patterns also varied, with alcohol and cannabis dominating in South Asia, and heroin in European studies. The study identifies research gaps, in terms of South Asian working populations. Areas for future directions include culturally nuanced interventions and stigma reduction through policy-driven frameworks. These results underscore the importance of culturally tailored strategies for targeting determinants of substance use across different populations.

Keywords: determinants, psychoactive substance use, psychosocial, South Asia, Europe

Throughout human history, psychoactive substances—which are characterised by their ability to affect the central nervous system (CNS)—have been used for spiritual, recreational, and medical purposes in many cultures. Through their interactions with neurotransmitter systems, these substances change perception, mood, and behaviour, with potentially harmful as well as therapeutic effects. Stimulants, depressants, opioids, hallucinogens, cannabinoids, dissociatives, and inhalants are all categorized into different groups, each with its own pharmacological mechanisms and social ramifications (Koob & Volkow, 2016).

The ICD-10 and DSM-5 criteria

The ICD-10 classifies substance-related disorders under "Mental and Behavioural Disorders due to Psychoactive Substance Use" (F10-F19). The classification emphasizes both the physical and mental harm caused by substance use and categorise disorders based on the specific substance involved (e.g., alcohol, opioids, cannabis) as well as the clinical state, which may include acute intoxication, harmful use, dependence syndrome, withdrawal, substance-induced psychosis, and other conditions. Diagnosis is based on meeting specific criteria within a 12-month period (World Health Organisation, 2016).

DSM-5 categorizes disorders as 'Substance-Related and Addictive Disorders,' and these are divided between substance use disorders and substance-induced disorders, which can include withdrawal or intoxication. A diagnosis of substance use disorder (SUD) is based on 11 criteria, which are broadly categorized into impaired control, social impairment, risky use, and pharmacological dependence (tolerance/withdrawal). At least two of these 11 criteria must be met within 12 months for a diagnosis.

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Psychoactive Substance Use in South Asia

South Asia includes Sri Lanka, India, Afghanistan, Bangladesh, Pakistan, Bhutan, Maldives and Nepal. Cultural, socioeconomic, and legal factors drive the patterns of substance use in this region. There is a unique pattern with the prevalence of plant-based drugs, such as cannabis, which are deeply embedded in the cultures and traditions of the regions (Ambekar et al., 2005). For example, marijuana use is closely linked to cultural rituals and social activities. For India and Nepal, cannabis is often part of Holi (a Hindu festival celebrated in March in honour of Lord Krishna) and Shivaratri (a Hindu festival celebrated in honour of Lord Shiva) celebrations. Alcohol use may be highly institutionalized during tribal festivals, particularly in Bhutan and a large percentage of Indian states (Ambekar et al., 2005).

In Bangladesh, the rising use of methamphetamine tablets, known as "yaba" or "crazy medicine", is a growing concern due to severe health and societal issues caused by its use, particularly among youth (Fattah, 2012). Similarly, in India, increasing psychoactive substance use was reported among female students aged between 18-25 years, which indicated that intervention programs should be tailor-made for young women (Jaswal et al., 2023). In Nepal, the change from opium to heroin use has been observed, and youth are increasingly using drugs. This is a concerning trend and requires timely attention (Ambekar et al., 2005). Similar to Nepal, Sri Lanka is in transition from opium to heroin addiction, with alarming rates of heroin abuse (Ambekar et al., 2005).

Psychoactive Substance Use in Europe

According to the European Drug Report (European Monitoring Centre for Drugs and Drug Addiction, 2024), there is high availability of all commonly used illicit substances due to supply of the same in the European Union. The Netherlands known for its liberal attitude towards substance use, has high prevalence of cannabis and other drug use (van Laar et al., 2011). The UK has a significant drug problem, with high rates of opioid and cocaine use, particularly in urban areas like London (Home Office, 2020). Germany is known for its vibrant nightlife, which contributes to higher rates of

substance use, particularly among young people (Bundesministerium für Gesundheit, 2025).

Several European countries share cultural similarities that contribute to higher substance use rates. Liberal attitudes towards drug use, as seen in the Netherlands, Portugal, and Switzerland, encourage more open consumption (Hedrich, 2004). Additionally, the social and cultural dynamics of nightlife in countries such as Spain, Italy, and Germany have been linked to increased patterns of substance use (Measham & Brain, 2005). Furthermore, in some regions, drug use is associated with youth rebellion and self-expression, reinforcing its presence in social settings (Parker, 1999).

Existing findings as detailed above indicate considerable differences in patterns of substance use among South Asian and European nations, driven by cultural attitudes, socioeconomic determinants, and government policy. European countries have higher consumption due to permissive social attitudes and greater acceptance, whereas South Asian nations have more rigid control and cultural prohibition that impact the pattern of use. These differences emphasize the necessity of exploring the psychological and socio-demographic factors that contribute to substance use among both sets of nations.

Rationale

Cross-cultural research plays a vital role in advancing an empirical understanding of human behaviour by systematically examining the influence of cultural contexts on behaviour, focusing on variations across diverse societies (Matsumoto & Juang, 2016; Papayiannis & Anastassiou-Hadjicharalambous, 2011).The fundamental purpose of such research is to determine whether particular behaviours are universal human traits or culturally bound phenomena (Ember, 2009).

Individuals across all social groups based on gender, race, ethnicity, sexual orientation, caste, class, and religion are affected by addiction. This makes it crucial for addiction professionals to develop culturally responsive behaviours, strategies, and techniques to

assist affected populations. By doing so, they can foster an inclusive and supportive environment for individuals potentially seeking treatment (Jones & Branco, 2021).

The Diagnostic and Statistical Manual of Mental Disorders, 5th edition, text revision (DSM-5-TR) also emphasizes the importance of addressing culture-related diagnostic issues in mental health assessments, including substance use disorders (American Psychiatric Association, 2022). These considerations include but are not limited to cultural beliefs about the causes or triggers of disorders, cultural norms impacting the perception of pathology and factors influencing differential prevalence rates across demographic groups.

The principle of multicultural competence is also applicable here that enables mental health professionals to empower individuals from different cultural and ethnic backgrounds (Sue, 2001). This also includes understanding drug cultures that are present in different nations (Substance Abuse and Mental Health Services Administration, 2024).

Blum's (1974) seminal work, *Society and Drugs: Social and Cultural Observations,* stands out as a significant contribution to understanding the factors influencing drug use patterns across cultures. Drawing on data from over 247 cultures documented in the Human Relations Area Files (HRAF), Blum analyzed the similarities and differences in drug use, associated outcomes, and cultural beliefs. Notable findings from this study include the absence of higher drug use among females for any substance examined, the prominence of social factors as primary motivators for use, and a general upward trend in drug use over time, excluding stimulants and opium. This study serves as a benchmark for the authors of the present study to conduct a cross-cultural comparison between South Asian and European countries regarding the psychological and social determinants of psychoactive drug use.

Understanding nuances that differ from culture to culture becomes important, hence, this systematic review aims to investigate the cross-cultural similarities and differences between South Asian and European countries, with a special focus on the psychological and socio-demographic determinants of psychoactive drug use. The authors aim to examine literature published between 2014 and 2024 in select European and South Asian countries, with the objective of conducting a cross-cultural comparison.

Methodology

The present study's findings are based on themes derived from the selected papers. The focus will be on studies published within the last decade, from 2014 to 2024. The search methods included perusing various databases namely Pubmed, Pubmed Central, BMC Public Health, Google Scholar and Science Direct. The following terms were used: psychoactive substance use and determinants, drug use and mental health, drug use risk factors, etiology drug use, psychosocial factors and substance use, psychoactive substance use Europe, psychoactive substance use Asia. The last two keywords were used to help narrow down the search. Investigators also manually searched and found papers from the reference section of relevant articles.

The following were the kind of studies included:

- Research studies employing quantitative, qualitative, or mixed methods from South Asian and European countries.
- Studies that investigate the psychological and socio-demographic determinants of psychoactive substance use.
- Studies involving participants of all ages, social groups, and genders.
- Studies analyzing both legal and illegal substances.

The following were excluded:

- Studies that focused on psychedelics and novel psychoactive substances (NPS).
- Studies that concentrated solely on psychotropic drug usage.
- Studies that examined genetic and neurobiological determinants.
- Any studies published in 2013 or earlier.

- Studies that focused solely on medication trials or pharmacological interventions for substance use.
- Cross-cultural studies.
- Studies that focused solely on the prevalence of substance use.
- Studies that examined risk factors for relapse.
- Studies that investigated pandemic-related determinants.
- Studies that focused on immigrant populations.
- Studies that were not available in English.

Study selection

Titles and abstracts were initially reviewed for eligibility. If the inclusion criteria could be confirmed from the abstract alone, the full-text article was retrieved. Articles that did not meet the eligibility criteria based on the abstract were excluded (see Figure 1).

Data extraction

A systematic data extraction process was used to retrieve relevant information from each study in a systematic manner. Important information, such as Author/Year, Methodology, and Major Findings, was extracted and entered into a preformatted Excel spreadsheet. The systematic format enabled comparative analysis across studies to identify patterns and differences in determinants of substance use between South Asian and European populations.

The extracted data was subjected to a systematic analysis wherein common themes were determined across studies and methodological variations were examined to determine the validity and reliability of the results. Data were also grouped according to socio-demographic and psychological determinants, allowing for a thorough cross-cultural comparison. This ensured a comprehensive understanding of the psychological and socio-demographic determinants of psychoactive substance use in both regions.

Results

The electronic database search initially yielded 309 studies. After applying the inclusion criteria, 99 studies were excluded due to closed access, and 5 duplicate papers were removed. Further screening resulted in the elimination of 63 studies based on country criteria and 33 studies were excluded due to publication year restrictions. Additional exclusions included 9 systematic reviews, 6 cross-cultural studies, 4 non-empirical papers, 9 studies focusing on novel psychoactive substances (NPS), 4 studies on immigrant populations, 5 studies focusing solely on psychotropic drugs, 29 studies concentrating solely on medication trials, prevalence, or neurobiological determinants and 1 study focusing on pandemic related determinants. Thus, a total of 67 studies were excluded here. Papers falling under additional exclusion criteria, such as non-English language studies, had already been filtered out during other exclusion processes. However, the investigators deemed it important to explicitly state these criteria in the exclusion framework.

As a result, 27 articles were identified from South Asia and 15 were identified from Europe, tallying up to 42 articles in total.

We organized our findings into 5 themes: Children and Adolescents, College Students, Clinical populations, General population, and Other Populations.

Discussion

The discussion explores the findings through five key themes based on study populations: *(1) Children and Adolescents, (2) College Students, (3) Clinical Populations* (including individuals in rehabilitation, mental health, and de-addiction centers), (4) *General Population,* and (5) *Other Populations* (such as working professionals, healthcare workers, IPV victims, and prisoners). Each theme is divided into two sections, first exploring the similarities in substance use determinants across both regions, followed by an analysis of the key differences within each population group.

Figure 1

Visual Representation of the Screening and Selection Process for Included Studies
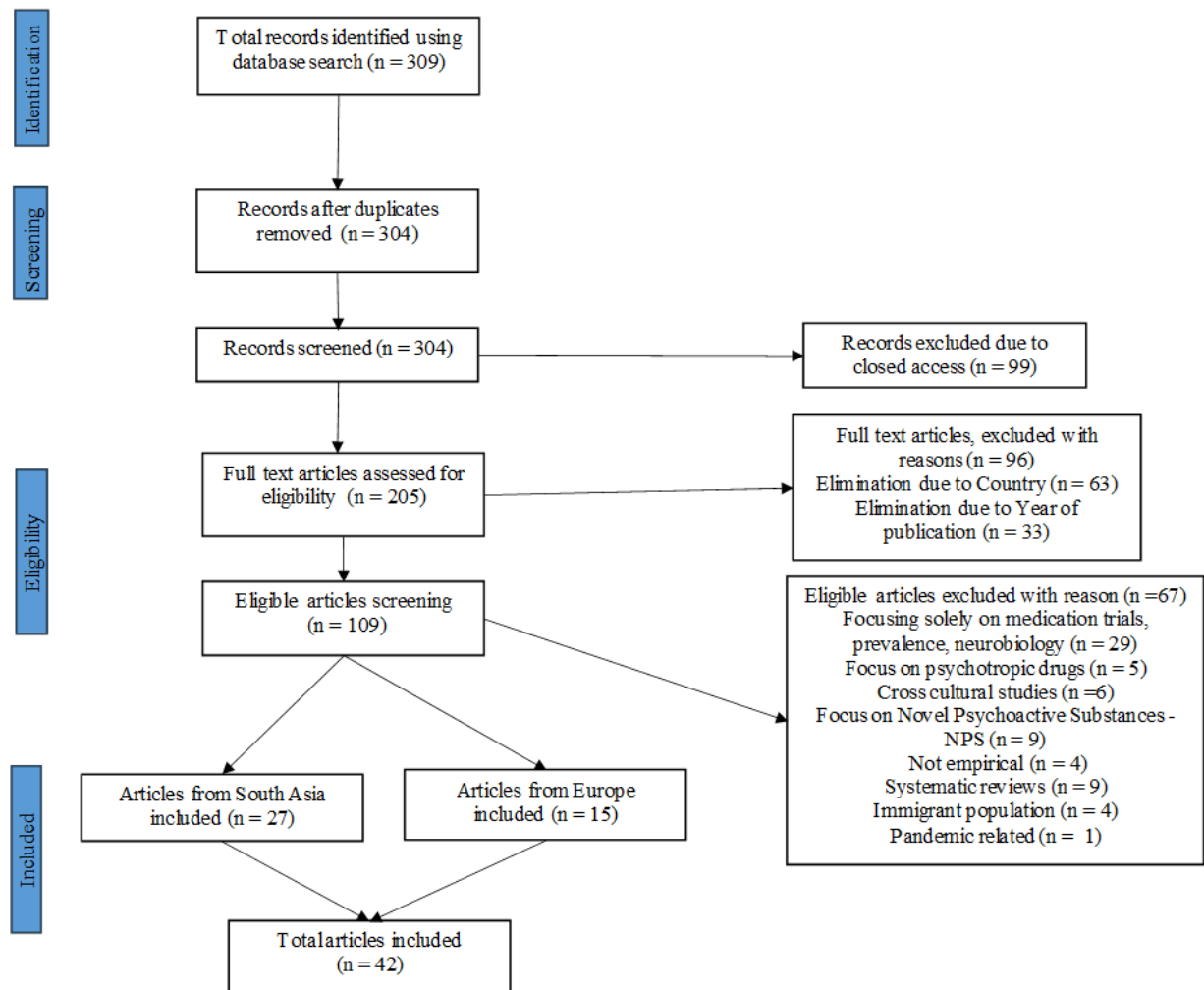
Children and Adolescent population

Similarities

Many studies across South Asian and European regions have found consistent findings when it comes to the socio-demographic characteristics that act as determinants of psychoactive substance use among this population. Gender was a significant risk factor in both the regions, as males were more likely to use psychoactive substances (Bhandari, Paudel, et al., 2021; König et al., 2018). Substance use was found to be influenced significantly by both peer and family influences transcending cultures. Adolescents who used psychoactive substances had a higher probability of doing similar things (Fuentes et al., 2020; Wangdi & Jamtsho, 2019;). Academic performance and family structure contributed to affecting the amount of substance use. Poor academic self-perception and less family impact on personal life were identified as shared risk variables in both South Asian and European research (Mazur et al., 2016; Moonajilin et al., 2021). Furthermore, parental supervision, particularly for homework and free time, was

consistently associated with lower substance use, emphasizing the preventive function of parental participation (König et al., 2018; Sojib et al., 2024).

Differences

At the same time, there were significant disparities in the characteristics that influence substance use among South Asian and European adolescents. In South Asia, socioeconomic and family-related characteristics such as education level, family structure (For example: Joint families), and the presence of step-parents were found to have a substantial impact on substance use (Islam et al., 2014; Sojib et al., 2024). Unlike in South Asian studies, European studies focused more on self-esteem, anxiety, parent-child conflict, as primary predictive factors of early or age-related changes in such behaviour (Mazur et al., 2016; van Cleemput, 2018). In European contexts, a close relationship with parents, especially fathers, was associated with less substance use, but in South Asian contexts, characteristics of family loss and street life duration were more salient (Cakici et al., 2018; Fuentes et al., 2020). Digital technology such as smartphone use was reported as an important risk factor for substance use by South Asian studies (Moonajilin et al., 2021). However, it received less attention in European reports. Such differences imply that cultural variations in family dynamics, emotional health, and technological engagements may affect the children and adolescent substance use patterns differently in these two regions.

College Student population

Similarities

The identified studies shared a consistent emphasis on stress which emerged as a primary risk factor (Kokiwar et al., 2019; Saxena et al., 2019), highlighting the role of academic pressure and mental health challenges. Another very common determinant was peer influence (Kamaladshan et al., 2018; Panthee et al., 2017), where the main driving force behind substance use was curiosity and socialization pressures. In addition to those, familial factors, mainly positive family history of substance use, were repeatedly shown to increase

prevalence. (Goel et al., 2015; Patel et al., 2016). Across all studies, uniform emphasis was placed on preventive interventions, whether through mental health promotion (Jaswal et al., 2023) or structured substance-use education (Brar et al., 2020).

Differences

Although the studies revealed similar risk factors, the focus of the studies was on the specific populations and determinants, which was a significant difference. For instance, Thennakoon et al. (2024) linked personality traits, such as openness and extraversion, uniquely to substance use, whereas Kamaladshan et al. (2018) focused on cultural and social media influences. Methodological variations were also observed with cross-sectional designs being more common compared to longitudinal designs (Gajda et al., 2021). Further, although most papers emphasized peer influence as the major determinant of non-smoking behaviour (Kamaladshan et al., 2018; Panthee et al., 2017;), some focused on policy support, such as smoking bans, as a determinant of nonsmoking behaviour - a fundamentally more policy-oriented approach (Brar et al., 2020).

Clinical population

Similarities

The continuous use of multiple addictive substances is a problem that transcends across boundaries of countries (Bhandari, Khatiwada, et al., 2021). Sri Lanka, India, Belgium, and Nepal showed a high prevalence of substance use disorders among populations seeking treatment in these areas (König et al., 2018; Mazur et al., 2016). Studies in these countries indicate that the most frequently abused substances include tobacco and alcohol, especially among those with mental illness (Bhandari, Khatiwada, et al., 2021). Alcohol, cannabis, and opioid abuse have been documented in Sri Lanka (Mazur et al., 2016). According to evidence, anxiety and depression are the common symptoms found in the substance users (Moonajilin et al., 2021). Patients who undergo rehabilitation in Nepal experience high levels of

psychosocial stress (König et al., 2018). In Belgium, general practitioners have played a great role in providing psychological support and empathy to patients with addiction problems (Fuentes et al., 2020). Research on substance use suggests that social and economic factors contribute to the problem. Influences such as peer pressure and family conflicts play a significant role in substance use across various countries (Islam et al., 2014; Moonajilin et al., 2021). Therefore, the problem is interrelated with mental health issues, and various socioeconomic factors.

Differences

Significant gaps are present in the characteristics of the study populations and the substances investigated in the two regions. For example, studies conducted in Belgium targeted patients with illicit substance use disorder in general practice (Richelle et al., 2024), whereas studies conducted in Sri Lanka and India targeted populations that sought services in organized health and rehabilitation centers (van Cleemput, 2018). In general, anxiety and depression remained key mental health determinants among the countries reviewed. A study in Nepal, however, focused on rehabilitating individuals' mental health condition; whereas, the Belgium based studies examined a patient's expectations of primary care services offered (Cakici et al., 2018; Richelle et al., 2024). Other regional variations could be observed regarding the abused substances. While alcohol, cannabis, and opioids were widely reported in Indian and Sri Lankan populations (Bhandari, Khatiwada, et al., 2021; König et al., 2018), heroin remained the commonly used substance among Belgium people (Richelle et al., 2024). Such variations appear due to both differences in study emphases and national contexts where specific patterns of substance use emerge.

General Population

Similarities

The studies conducted in Europe and South Asia emphasized the significance of socioeconomic variables in contributing to the use of psychoactive substances. In South Asia, socioeconomic factors such

as unemployment, poverty, and low educational attainment were frequently associated with increased substance use (Raphael et al., 2017). Low socioeconomic position was a significant predictor of substance use in Europe (Charitonidi et al., 2016; Ilhan et al., 2016). The prevalence of drug use among young people was greatly influenced by factors such as poorer income, substandard living conditions, and restricted access to education (Charitonidi et al., 2016; Ilhan et al., 2016). In both regions, specific substances were preferred including alcohol, tobacco, and cannabis (Charitonidi et al., 2016; Darshana et al., 2022; Ilhan et al., 2016; Wangdi & Jamtsho, 2019). Youth and teenagers were viewed as the most susceptible demographic for substance use in both regions. (Bhandari, Khatiwada, et al., 2021; Charitonidi et al., 2016).

Differences

In South Asian countries, there are legal prohibitions on illegal drugs, alcohol and tobacco. Despite that, they are more culturally embedded and socially acceptable (Bhandari, Khatiwada, et al., 2021; Darshana et al., 2022). Although drug use is common throughout Europe, there is the factor of social criticism of usage, while public health campaigns and drug prevention measures are given attention more frequently (Charitonidi et al., 2016). It was found that the reach of drug prevention initiatives is constricted by the absence of availability of public health infrastructure in many South Asian countries (Bhandari, Khatiwada, et al., 2021; Wangdi & Jamtsho, 2019). Europe often has more coordinated and effective harm-reduction plans and public health initiatives, seen particularly among young men (Charitonidi et al., 2016).

Other populations

Prison population

In both studies, high prevalence of psychoactive substance use among male prisoners was reported in prisons where inmates relied on substances such as alcohol, cannabis, and opioids to cope with stress and isolation and peer pressure. (Caravaca-Sánchez et al., 2015; Jat et al., 2019). However, differences were noted

in reasons for substance use. However, differences were noted in reasons for substance use. In the South Asian prison, the forces driving substance use were said to be more peer pressure based and the brutality of life in prison while in the European prison, an emphasis on pre-existing mental health conditions and past offending behaviours were more pronounced (Caravaca-Sánchez et al., 2015; Jat et al., 2019).

Working populations

Psychoactive drug use has been strongly linked to an increased risk of work-related issues, while low well-being has been identified as a key factor making individuals more susceptible to sickness absences related to substance use (Lambrechts et al., 2019). In a similar manner, daily smoking and medical drugs have emerged as strong predictors of sickness absences that were frequent and prolonged, especially for men (Lund et al., 2019). Binge drinking, snus use, illegal drugs, and polydrug use did not have a strong association with sickness absences (Lund et al., 2019). For this population, none of the studies included came from South Asian countries.

Intimate Partner Violence (IPV) victims

Women who experience the emotional trauma of intimate partner violence turn to drugs as a coping mechanism. Psychotropic medications and alcohol serve as numbing agents for the psychological and bodily suffering caused by abuse (Crespo et al., 2017). Because IPV and substance abuse are stigmatized, victims frequently feel alone and are unable to ask for support or assistance from others (Crespo et al., 2017). None of the studies reviewed for this population were situated within the South Asian context.

Healthcare workers

In order to deal with the physical and emotional exhaustion brought on by erratic work schedules and stressful work conditions, healthcare professionals turn to drugs (Cousin et al., 2022). These employees frequently feel embarrassed about their substance use, even when they are professionals, which discourage them from getting treatment or being candid about their

problems (Cousin et al., 2022). As with working population and IPV victims, research on healthcare workers in South Asia is scarce, leaving a gap in understanding how various factors may intersect to influence substance use.

Conclusion

This study aimed to explore literature on psychological and social determinants of psychoactive substance use that spans over 10 years (2014 to 2024) in European countries and south Asian countries and offer a cross-cultural comparison. The systematic review showed that 42 relevant studies could be grouped together based on five themes: general populations, clinical populations, college students, children and adolescents, and other populations.

Results show cultural differences between the two regions — European studies assessed the psychological characteristics and public health policies while South Asian studies focussed on the family structures and socio-economic challenges. The findings also looked at similarities between the determinants as well, namely peer influence and socio-economic factors. Significant gaps were identified in the literature, particularly concerning the working population, healthcare professionals, and victims of intimate partner violence (IPV) in South Asia. The lack of research on these groups limits the development of targeted interventions and culturally appropriate support. More region-specific studies are needed to better understand their unique vulnerabilities and guide effective responses.

The findings suggest that rising smartphone usage in South Asia is contributing to greater digital engagement, coinciding with an increase in substance use that calls for targeted interventions. Meanwhile, this aspect receives less focus in Europe, where proactive prevention strategies could be more effectively utilized. Cultural embeddedness shapes the behaviours of substance use significantly. South Asia looks upon family structures for intervention, while Europe focuses more on the individual psychological aspects like self-esteem and emotional resilience.

Reducing stigma continues to be a shared concern as it often stops people from receiving treatment. However, the culturally sensitive and community-driven approaches in South Asia and the policy-driven frameworks in Europe could significantly strengthen stigma reduction efforts.

Future research should focus on cultural nuances in digital risk factors, the development of non-Western theoretical models of substance use, and mixed methods approaches to discover deeper insights into underrepresented populations. The steps are to start transitional programs for marginalized populations like prisoners and IPV survivors, to tap into the family structure, for interventions in South Asia, and to improve harm-reduction policies in Europe. We recommend that integrating these tailored strategies contributes to the comprehensive understanding of determinants of substance use and opens ways toward culturally relevant and effective interventions.

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Shop or Stop? Exploring Self-Regulation as a Mediating Variable in the Relationship Between Peer Influence and Impulsive Buying

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Abstract: Peers are influential social agents, particularly among young buyers like college students, who often discuss purchases and shop in groups. This study examined the relationship between peer influence and impulsive buying behaviour, with self-regulation as a potential mediator. It also explored gender differences in impulsive buying, peer influence, and self-regulation. We hypothesised that peer influence positively affects impulsive buying, with self-regulation mediating the relationship, and that these variables differ significantly between males and females. The study employed a correlational design and convenience sampling. Data were collected from 180 Indian college students using an online questionnaire measuring impulsive buying, peer influence, and self-regulation. Peer influence significantly and positively impacted impulsive buying (β = -.220, R^2 = 0.049, p =.003). Self-regulation was not a significant predictor, Z = -1.053 (p = .29), indicating no mediation. Impulsive buying was significantly higher in males than females (t = -2.206, p = .029), while males also exhibited higher self-regulation (t = -2.606, p = .01). No gender differences were found in susceptibility to peer influence. This study highlights that peer influence increases impulsive purchases, with notable gender differences, providing insights for both consumers and businesses.

Keywords: impulsive buying, self-regulation, peer influence, consumer behaviour, gender difference

Consumerism is integral to the framework of current societies. Societies today rely on ever-increasing consumption, and this perpetuates a cycle where the more people consume, the more society depends on it. In India, globalization after 1991 ushered in a new phase of consumption culture. Consumer spending in India averaged INR (Indian Rupee) 13,477.17 billion from 2004 until 2023, peaking at 24,787.00 INR billion in the fourth quarter of 2022 (Trading Economics, 2023). India is also expected to become the third largest consumer market by 2030. Segments such as blue-collar workers and skilled professionals, encompass around 130 million individuals earning an average annual income exceeding 3,200 USD (Santander Trade Portal, 2023).

Consumerism develops slowly in the due course of socialization (Lenka & Vandana, 2015), with different social agents playing a role in consumers' tendencies to buy certain products and in different types of buying behaviour. Impulsive buying, characterized by sudden and unplanned purchasing decisions, is a phenomenon with significant implications for consumer behaviour

and economic trends. Previously framed as an individual-trait-driven-behaviour, mostly in the West, it is a result of several factors such as emotional states, especially in collective societies, and of social comparisons (Kacen & Lee, 2002; Miao et al., 2020). Such societies are cohesive with a strong sense of social belongingness, making impulsive buying more likely to be socially driven by peer presence and emotional bonding.

Recent studies reveal that consumers, on average, spend a substantial portion of their annual budget to impulsive purchases. According to Thredup (2019), US shoppers 18–24 years of age make almost half of their purchases (49%) on impulse with similar numbers observed in the UK (KPMG, 2016).

Peers, known as the primary socialization agents, drive social consumption motivations (Shim, 1996). Peer pressure contributes 18.34% of what goes into making shopping decisions. This is due to "Peer Influence", a process where they become a source of affiliation. Individual buyers may see others buying

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impulsively and get accepted among their peers or see shopping related decisions as being a group task (Bandura, 1986; Festinger 1954).

Culture also plays an important role in buying behaviour, as how much people can resist what their peers want them to do is different across cultures, because of a choice between personal freedom and social conformity (Schneider, 2006). This individualist-collectivist dichotomy is broad and oversimplified, yet reveals a recurring pattern, that individualistic cultures may find it easier to resist peer influence than the collectivistic ones (Chen, 2000; Domino, 1992).

This study delves into the relationship between peer influence and impulsive buying, focusing on self-regulation as a mediating variable between the two. While extensive research has investigated impulsive buying and interpersonal influence on consumer choices (Bearden & Etzel, 1982; Muruganantham & Bhakat, 2013; Rook & Fisher, 1995), the role of self-regulation in this phenomenon is under-researched, despite evidence of its impact on impulsive buying tendencies (Adri et al., 2021; Pradipto et al., 2016). Our study addresses this gap, proposing self-regulation as a mediator that determines how resistance to peer influence leads to impulsive buying.

Peer and Other External Influences on Impulsive Buying

Impulsive buying behaviour can be defined as the tendency of a consumer to buy a product without much thought, in a spontaneous manner. It has been explored across different contexts, including age, gender, mood (i.e., consumer characteristics), emotional connect with the product, peer and family influences, web store functionality (in case of online impulsive buying), and so forth (Kumar & Kaur, 2018; Zhang & Hossen, 2019). It arises from an interaction of various internal and external stimuli, personality traits and socio-cultural factors (Muruganantham & Bhakat, 2013). For instance, Asian collectivist consumers exhibit lower impulsive buying than Caucasian individualist consumers (Kacen & Lee, 2002). External influences such as reference groups also shape product and brand

evaluation (Bearden & Etzel, 1982). Store elements, including promotions and employees' behaviour, further influence purchase decisions (Alghzawi et al., 2020).

Bettman's information processing model of consumer choice has highlighted how a consumer has limited information processing capacity and does not properly analyse all the information that they may receive (Payne & Bettman, 2004). The interaction of external stimuli, consumer characteristics, and their decision process is what determines their response and behaviour, as explained by the Black Box Model (Chauhan, 2013). The Latent Trait–State theory also places consumer behaviour as dependent on the individual's traits, the characteristics of the environment (i.e., states), and the interaction between these two sets of characteristics (Wells et al., 2011). These mechanisms could explain the occurrence of impulsive purchases.

It is noteworthy to understand the developmental aspect of consumer behaviour. Children and adolescents undergo a shift from primarily depending on and forming attachments with their parents to integrating a growing reliance on and attachment to their peers (Nickerson & Nagle, 2005). In the context of teen consumers, going out with peers is significantly related to more expenditures and increased frequency of shopping behaviour due to more positive conformity (Adri et al., 2021). In fact, peers display stronger effects on awareness of product and brand information, followed by parents and media (Mishra & Maity, 2021). Previous research has suggested high peer influence among college going young adults in India, especially with products that are branded and belong to categories like technology, entertainment and environmentally friendly apparel (Khare & Sadachar, 2017; Mavale & Soni, 2018). Based on these findings, the first hypothesis was conceptualized as follows:

H1: The resistance to peer influence will significantly decrease impulse buying behaviour for Indian college students.

Self-regulation and Impulsive Buying

The direct relationship between peer influence and impulse buying overlooks a fundamental psychological mechanism: the ability to self-regulate one's behavior. Self-control, interchangeably used for self-regulation in our study, addresses this gap. Self-regulation can be defined as systematic efforts by which an individual strenuously controls behaviour to reach important objectives (Ghaemi, 2011; Zimmerman, 2000).

Baumeister (2002) and later research on dual-process theories of decision-making (Kahneman, 2011; Strack & Deutsch, 2004) have suggested that consumer decisions are governed by two cognitive systems: System 1, which is fast, emotional, and impulsive, and System 2, which is deliberative, rational, and goal-oriented. These systems work according to relative influence, implying that in situations where peer influence is strong, System 1 dominates, resulting in unplanned purchases driven by social pressures. However, the extent to which these impulsive tendencies are followed upon depends on the strength of one's self-regulatory capacity. Therefore, high self-regulation can resist peer-driven urges, while low self-regulation yields impulse buying. Self-regulation is thus a form of a psychological buffer, determining when peer influence leads to impulsive purchasing behaviour.

It is also a process that keeps control of cognition and emotions experienced by an individual which influence the attainment of goals. Higgins (1997) has discussed the self-regulatory process, using two strategies- promotion-focused and prevention-focused. This is part of his Regulatory Focus Theory, explaining that promotion-focused individuals have the tendency to seek rewards and to get excited, while prevention-focused people are more cautious and self-disciplined. This means that people who know precisely what they want, track expenditures, and restrain their impulses are less vulnerable to external influences.

Self-regulation and impulsive buying have been found to be significantly correlated (Pradipto et al., 2016), with a negative effect of self-control on impulsive purchases, moderated by peer influence (Efendi et al., 2019; Zahid et al., 2022). According to the Life Span Theory of Control (Heckhausen & Schultz, 1995), younger people relying on primary control are more prone to impulsive buying, while secondary control assists in regulating desires and emotions. Reduced self-regulatory capacity enhances impulsive tendency, and a chronic pattern of impulsivity has been linked to negative outcomes (Adri et al., 2021). Peer rejection can lead to enhanced risk aversion (King et al., 2018), and therefore dynamics between peer influence and self-regulation can be further investigated.

H2: Self-regulation will mediate the relationship between resistance to peer influence and impulse buying behaviour.

Gender Differences in Impulsive Buying: Roles of Self-Regulation and Peer Influence

Gender differences in impulsive buying are well documented, with women more likely to experience an irresistible urge to consistently purchase their preferred items. Similar evidence exists showing that women aged 20-30 show the highest spending trends, while older consumers of both genders show rational spending habits, indicating that age and gender significantly influence purchasing decisions. While men make unplanned, larger purchases, women display "moderate impulsivity" by buying additional items in a controlled manner (Istudor & Pelau, 2013). Studies also show that men exhibit more impulsive behaviour with less emotional involvement than women. Evolutionary theories indicate that women developed greater impulse control due to nurturing roles, while men remain more prone to spontaneous actions (Knežević, 2018). Social psychological theories suggest that females are more influenceable, especially by their friends and close peers (Geven et al., 2017; Han & Li, 2009).

The findings on gender differences have found women to have higher self-regulation in comparison to men (Alhadi et al., 2024; Zahid et al., 2022). However, it is possible that these differences may be confined to

middle adolescence and not extend to young adulthood (Tetering et al., 2020). Thus, we posit 3 hypotheses as follows:

H3: There will be a significant difference in the levels of Impulsive Buying behaviour between males and females.

H4: There will be a significant difference in the levels of Resistance to Peer Influence between males and females.

H5: There will be a significant difference in the levels of Self-regulation between males and females.

Method

Participants

An online Google Form link was circulated through the researchers' contacts, social media platforms, and community groups. Data was collected using convenience sampling because of its convenience, cost-effectiveness, and time-saving nature. Moreover, web links made it easier to spread the form throughout the network by the participants themselves. College-going Indian students in the age range of 17-25 years, proficient in English were invited to complete the questionnaire. The final sample consisted of 180 Indian college students, with participants ranging in age from 17 to 25 years ($M = 19.46$, $SD = 1.388$). Of the total participants, 42.2% identified as male ($n = 76$), 57.2% identified as female ($n = 103$), and 0.6% identified as genderfluid ($n = 1$). The majority of participants were pursuing a Bachelor's Degree, and 53.33% were pursuing Humanities courses such as History, Political Science and so forth. The participants were primarily from metropolitan areas, with 71.66% residing in Delhi-NCR region.

Measures

Buying Impulsiveness

The 9-Item Buying Impulsiveness Scale, developed by Rook and Fisher in 1995 measures impulsive buying

behaviour using a 5-point Likert-type scale. The scale has a mean score of 25.1, a standard deviation of 7.4, and a high level of internal consistency with a Cronbach's alpha of .88. For the present study, Cronbach's alpha was .732. Its validity has been demonstrated by Brockman (2014) through convergent and discriminant validity testing.

Resistance to Peer Influence

The Resistance to Peer Influence (RPI) scale developed by Steinberg and Monahan in 2007, aims to assess an individual's resistance to peer influence in general terms, without specific reference to antisocial peer influence. It comprises 10 pairs of statements, where respondents choose the statement that best describes their behaviour regarding peer influence. For each chosen descriptor, respondents indicate whether it is "Really True" or "Sort of True." The responses are then coded on a 4-point scale and averaged, with higher scores indicating greater resistance to peer influence. It has psychometric properties, including reliable internal consistency (Cronbach's α > .70) and criterion validity (Steinberg & Monahan, 2007).

Self-regulation

The 31-item Short Self-Regulation Questionnaire (SSRQ) is a streamlined version of the original SSRQ by Brown, Miller, and Lawendowski (1999), which assessed self-regulation across seven steps. Carey et al. (2004) introduced the concise 31-item version, using Likert type responses from 1 (strongly disagree) to 5 (strongly agree). 13 of the items are reverse scored. This scale showed a unidimensional structure with high reliability (α = .92) and strong correlation ($r = .96$) with the original. Neal and Carey (2005) identified two factors: impulse control and goal setting, demonstrating validity. The SSRQ scores ranged from 63 to 154, with a mean of 116.6 and a standard deviation of 15.0.

Results

In this section, the responses of the survey were analysed according to the hypotheses. Descriptive statistics for the key variables (resistance to peer

influence, self-regulation, and impulsive buying behaviour) were computed. Mean scores for resistance to peer influence (M = 2.813, SD = .401), self-regulation (M = 1.504, SD = 11.398), and impulsive buying behaviour (M = 21.922, SD = 5.925) were calculated.

In order to test the first hypothesis, which stated that the presence of peers will significantly increase impulse buying behaviour for Indian college students, a linear regression analysis was computed using Impulsive Buying Behaviour (IBB) as the dependent variable and Resistance to Peer Influence (RPI) as the independent variable.

Table 1

Regression Analysis Results of Resistance to Peer Influence on Impulsive Buying

IV	R^2	F	β	t
RPI	.049	9.085**	-.220	-3.014**

** $p<.01$

Resistance to Peer Influence significantly impacted Impulsive Buying Behaviour (β = -.220, p= .003). When resistance to peer influence decreased, i.e., when there was more influence exerted by peers, impulsive buying behaviour significantly increased, and vice versa. The R^2 value was 0.049, indicating that approximately 4.9% of the variability in impulsive buying behaviour can be explained by resistance to peer influence. Therefore, H1 was accepted.

H2 stated that self-regulation will mediate the relationship between peer presence and impulse buying behaviour. A mediation analysis using the Sobel test was performed with Impulsive Buying Behaviour (IBB) as the dependent variable (Y), Resistance to Peer Influence (RPI) as the independent variable (X) and Self-regulation (SR) as the mediating variable (M). The results found that self-regulation did not significantly mediate the relationship between resistance to peer influence and impulsive buying behaviour (Z = -1.053, p = .29). Thus, H2 was not accepted.

Table 2

Mean, SD and t-test Results of Male and Female Students on the Variables

Variables	Female (n =103)		Male (n = 76)		t (df = 177)
	M	SD	M	SD	
Impulsive Buying Behaviour	21.058	5.468	23.013	6.357	-2.206*
Resistance to Peer Influence	2.848	0.394	2.767	0.411	1.326
Self-regulation	1.036	11.852	1.08	10.352	-2.606**

* $p<.05$, ** $p<.01$

To test Hypothesis 3, 4 and 5, which examine the differences in the levels of IBB, RPI and SR across males and females, three independent samples t-tests were performed. Table 2 shows the results of the t-tests. Impulsive Buying, was found to be significantly higher in males, (M = 23.013, SD = 6.357), in comparison to females, (M = 21.058, SD = 5.468) with t = -2.206 (p=.029), suggesting a significant gender-based difference in Impulse Buying tendencies. The effect size, as measured by Cohen's d, was d = 0.33, indicating

a small effect. Therefore, H3 was accepted. The difference in Resistance to peer influence between males ($M = 2.767$, $SD = .411$), and their female counterparts, ($M = 2.848$, $SD = .394$), was not significant with $t = 1.326$ and $p = .186$; hence H4 was not accepted. Finally, males reported significantly higher self-regulation levels with $t = -2.606$ and $p = .01$; the effect size was $d = 0.004$, demonstrating a very small effect. Therefore, H5 was accepted.

Discussion

The current research studied the relationship between peer influence and impulsive buying behaviour, with the examination of self-regulation as a mediating factor. It also explored gender differences in the levels of Impulsive Buying, Peer Influence, and Self-Regulation.

H1: Impact of Resistance to Peer Influence on Impulsive Buying Behaviour

Hypothesis 1, which asserted that peer influence will have a significant impact on impulsive buying behaviour, was accepted. Humans are social creatures who are highly influenced by people around them (McDonald et al., 2015). The influence is more powerful when its source constitutes peers and especially "significant others" along with spouses and parents who can offer cues to suggest a behaviour as desirable or undesirable (Luo, 2005). These findings point to the role of subjective norms in causing an inclination of buyers to comply and conform. This is in line with the Theory of Reasoned Action and Planned Behaviour (Ajzen & Fishbein, 1980; Ajzen et al., 2000).

Furthermore, psychosocial pressure of fitting in cannot be overlooked. Social learning (Bandura, 1977) increases the susceptibility to get influenced by peers (Bearden & Etzel, 1982), which can be manifested in either positive or negative emotional reactions. Impulsive buying also yields a positive effect on buyers, as their cognitive load reduces and emotions get heightened, instilling excitement and shared enthusiasm among peers (Mittal et al., 2015). Therefore, our research confirms that peer influence

serves as a significant external driver of impulsive buying, shaping purchasing behaviour through both social conformity and shared enthusiasm during group shopping experiences.

H2: Self-regulation as a Mediator Between Resistance to Peer Influence and Impulsive Buying Behaviour

The association between peer influence and impulsive buying behaviour was not found to be mediated by self-regulation, and Hypothesis 2 was rejected. As mentioned before, Self-control, has been used interchangeably with self-regulation in our study (Baumeister et al., 2002). These findings show that although previously self-control was found to be negatively and significantly associated with impulsive buying, it is also context-dependent (Efendi et al., 2019). These contexts range from the type of social settings to the number of peers, as well as the time spent shopping. Self-regulation is less effective when people are promotion focused, i.e., less cautious and more easily swayed by peers (Higgins, 1997).

Resources to maintain self-control can deplete when someone has engaged in self-regulation for a considerable time, or even when the number of peers is higher than usual. (Baumeister et al., 2002; King et al., 2018). People conform to peer-driven behaviour so that they can strengthen their connections to those around them even at the cost of their money. This is because according to Self-Determination Theory (Deci & Ryan, 1985), social belonging (relatedness) may be a higher priority than financial self-control. This could be a result of a shift of focus from long-term financial discipline to immediate gratification. It is referred to as a feedback loop, in Control Theory, in which self-regulation occurs by a modification in behaviour as per the internal goal (Carver and Scheier, 1982). These contexts of impulsive purchases were not assessed or manipulated in the current study.

Finally, the nature of the Short Self-Regulation Questionnaire by Carey et al. (2004) measures general self-regulation, through hypothetical scenarios, like "I usually keep track of my progress toward my goals.", "I have trouble making up my mind about things."

This lack of financial or consumer focus may explain why self-regulation did not play any mediating role between peer influence and impulsive buying.

H3: Impulsive Buying between Males and Females

The third hypothesis, which posited that there will be significant differences in Impulsive buying behaviour among males and females, was accepted. Traditional research has found that females tend to buy more impulsively (Coley & Burgess, 2003; Tifferet & Herstein, 2012). However, our findings identified men being more likely to buy impulsively than women. Our research offers new insights on the gendered nature of consumerism and suggests that there are factors other than the gender, which lead to unplanned purchasing. Men have been found to enjoy and prioritise status, independence, enjoyment and self-enhancement more than necessity (Dittmar, 2005). General personality research has also indicated that men tend to display more impulsiveness despite their self-reporting, and lower levels of patience. (Gangai & Agrawal, 2016; Knežević , 2018). Unlike women, men are less likely to engage in planned and cognitive deliberations before making purchases (Coley & Burgess, 2003), potentially leading to more spontaneous buying. Therefore, more internal sources, like social identity and self-satisfaction should be explored in gender-based studies.

H4: Resistance to Peer Influence between Males and Females

No significant differences in the levels of peer influence were found in the context of gender. Hence, Hypothesis 4 was rejected. The results of our study challenged some existing assumptions about gender and peer influence. Previously, it was observed that males possess better resistance to peer influence than females, partly because females tend to make decisions according to group consensus, in line with the social psychological theories that females are more susceptible to their close friends and peers' influence, and also for reasons such as the maintenance of friendship relations (Geven et al., 2017; Han & Li, 2009). However, even in longitudinal studies, peer influence does not vary by gender (Steinberg & Monahan, 2007).

A possible explanation could be the "homophily principle", which suggests that people who share the same location and other demographic characteristics tend to associate with each other (Lazarsfeld & Merton, 1954). Due to changes in societal attitude towards gender appropriate behaviour, male and female experiences may be becoming increasingly similar (McCoy et al., 2017). Therefore, both males and females, when surrounded by similar peers, show similar levels of resistance to peer influence (Allen et al., 2011). This offers the new insight that peer influence might not always be as gendered as we assume it to be.

H5: Self-regulation between Males and Females

In the context of Self-regulation, significant differences were found between males and females. Therefore, Hypothesis 5 was accepted. The present study found that self-regulation was higher among males in comparison to females. There have been consistent findings in past literature on the differences of self-regulation between males and females. In India and China, males have reported higher levels of self-regulation than their female counterparts (Bashir & Bashir, 2016; Wang et al., 2016). This highlights the need for exploration of the intersectionality between culture and perceived self-regulation. While some researches have explored this area, no clear explanation for why males have higher self-regulatory levels, has been found.

Our study found a statistically significant difference between males and females; however, the effect size ($d = 0.004$) indicates that this difference is minimal, suggesting that these differences may stem from other underlying factors like self-efficacy beliefs and coping strategies. Zimmerman (2002) and Veluyatham et al. (2012) emphasize self-efficacy as a key predictor of self-regulation; consequently, lower levels of self-efficacy in females than males could address this disparity (Huang, 2013; Montford & Goldsmith, 2015). Additionally, gender norms and expectations, especially in Indian culture, could act as a strong source of influence in identity formation and may explain the significant gender difference (Bashir & Bashir, 2016).

However, further research is needed to understand the role of coping strategies in self-regulatory behaviours (de la Fuente et al., 2020).

Implications

While impulsive buying is a common behaviour and not inherently negative, it can become problematic when it leads to financial difficulties, emotional distress, or compulsive behaviours. Understanding relevant factors, such as peer influence and marketing strategies, can help mitigate its adverse effects and promote healthier consumption patterns through better consumer protection initiatives, promoting economic literacy programs and interventions, and developing retail strategies in line with concerns about ethical spending and sustainability.

Limitations and Future Directions

This study has a few limitations that should be considered while interpreting the findings. First, the length of the questionnaire may have contributed to respondent fatigue, potentially affecting the quality and accuracy of the responses. Second, the survey method is subject to inherent limitations with self-reported data and biases like social desirability and rationalization of one's actions. In the survey, the use of a general self-regulation measure, i.e., SSRQ, may have restricted its sensitivity to domain-specific behaviour such as purchase decision-making. Additionally, the study utilized a convenience sampling technique, which can lead to a homogenous sample, limiting the generalizability of the findings.

Future research can address the limitations of this study by enhancing questionnaire design and incorporating mixed methods, including interviews, to uncover deeper factors involved in impulsive purchases. Field studies in retail settings can provide insights into actual consumer behaviour influenced by peers, while accounting for contextual variables such as the shopping environment.

Conclusion

The current research explored the relationship between Peer Influence, Impulsive Buying and measured whether Self-regulation plays a mediating role in this relationship. It also studied the gender differences in these variables. Peer influence was found to significantly impact impulsive buying behaviours among college students; however, self-regulation did not mediate this relationship. Further, gender differences revealed that men exhibit more impulsive buying tendencies but demonstrate higher self-regulation levels than females, breaking gender-based stereotypes. These findings underline the need for exploration of cultural, psychological and societal factors that influence consumer behaviours.

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Impact of Perceived Parental Rearing Behaviour on Sibling Bonds: An Indian Perspective

Milli Tewari[1] & Garima Sharma[1]

Abstract: The present study explores how perceived parental-rearing behaviour affects sibling relationships. Data was collected from 90 participants, aged 18-30 years, using the s-EMBU scale and the Adult Sibling Relationship Questionnaire (Very Short Form). Spearman's Rank Order Correlation analysed relationships between perceived parenting and sibling dynamics, while Mann-Whitney U Tests assessed gender differences and differences in sibling gender dyads (same vs. mixed-gender). Results found significant relationships between the subscale Rejection of the s-EMBU and Conflict on the ASRQ-VSF as well as between Emotional Warmth of the s-EMBU and Warmth of the ASRQ-VSF. Significant gender differences were found on the (Over) Protective subscale of the s-EMBU, with female participants reporting higher over-protective behaviours by parents.

Keywords: parental rearing behaviour, sibling bonds, family dynamics, Indian youth

Human society greatly depends on the emotional bonds we form with one another. A fundamental emotional tie comes in the form of family. People are primarily linked to one another by marriage or birth, and they form families, which are the most basic social unit in any community. The makeup and structure of families have changed significantly throughout time, but their essential elements have remained constant (Giddens & Birdsall, 2001). The foundation of the human personality is based on the deep emotional bonds and unparalleled support system this unit offers (Bowlby, 1969). This foundation is a result of family dynamics.

Family dynamics are the relationships or interactions between the members of the family. Every family structure and its dynamics are unique, despite the existence of some basic patterns (Carter & McGoldrick, 1999). Because of these disparate dynamics, some families flourish together, while others may have dysfunctional and maladaptive coping mechanisms for the difficulties their members experience (Walsh, 2012). Family has a significant impact on a person's beliefs, values and behaviour (Harris, 1995).

Given their position of authority within the family, parents create a powerful impression. They are typically the family's breadwinners, helping their children and the elderly to satisfy their needs. In Indian culture, parents often give fewer privileges to their young ones and exercise greater authority (Kakar, 1981). An authoritarian role is the most assumed traditional parenting style by Indian parents (Barnhart et al., 2013).

Perhaps the next most integral family tie is that with one's siblings. Sibling have received less attention. Regardless of age, siblings do have a significant influence on a person's social, emotional, and psychological growth (Whiteman et al., 2011). They typically have similar parental environments which improves their mutual understanding and can act as a stress-reduction mechanism (Brody, 1998).

Positive sibling relationships may offer emotional support, care, and a sense of security in times of trouble (Furman & Buhrmester, 1985). By preventing open communication in the family, poor parent-child connections can result in psychological issues (Popov & Illesanmi, 2015). However, a healthy sibling bond may prevent severe consequences of such instances and rather help in appropriate ways of dealing with the same (Veenhoven, 2009).

Similar to parents, sibling connections are enduring and may provide a person with a feeling of continuity and stability, which can have an impact on

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their overall well-being (Carrère & Gottman, 1999). They are frequently the person's safe haven where they may confide their deepest secrets. A family can produce more than two children, which results in greater sibling ties within the family. Sibling ties must thus be emphasized as having a major influence on a person's life and growth.

The interaction of various siblings with their parents can differ and can easily seep into the relationship they have with the other siblings (McHale et al., 2012). One sibling's obligations are often distinguished from the other based on the birth order of the children in the household (Zajonc, 2001). Typically, the older child is assigned caregiving responsibilities for the parents and younger sibling or siblings.

In certain situations, the younger ones may be given preference because they are often the ones who have been more protected. Sibling relationships may be influenced by the way parents engage with their children (Portner & Riggs, 2016). Sibling ties are frequently harmed by parental favouritism since it can lead to animosity between siblings (Kowal & Kramer, 1997).

Parents who exhibit warmth, empathy, and consistency can foster more supportive sibling relationships (Milevsky et al., 2011; Popov & Illesanmi, 2015). These sibling ties are characterized by collaboration, compassion, empathy, and support, among other qualities. However, sibling connections characterised by jealousy, resentment, conflict, rage, and insecurity may result from parents who have rigid, controlling, withdrawn, and inconsistent parenting approaches (Ferencz et al., 2023; Webster-Stratton, 2018).

However, current literature largely ignores the link between parental ties and the bonds one forms with one's sibling(s). This study attempts to fill this gap by examining the impact of perceived parental-rearing behaviour on sibling bonds.

Objectives

1. To investigate the relationship between perceived parental rearing behaviour and sibling relationships.
2. To examine gender differences across the three dimensions of perceived parental rearing: emotional warmth, rejection, and overprotection.
3. To examine gender differences across the three dimensions of sibling relationships: warmth, conflict, and rivalry.
4. To explore differences in the three dimensions of perceived parental rearing behaviour based on sibling gender dyads (same-gender vs. mixed-gender siblings).
5. To explore differences in the three dimensions of sibling relationships based on sibling gender dyads.

Hypotheses

1. H1: There will be a significant relationship between perceived parental-rearing behaviour and sibling relationships.
2. H2: There will be significant differences between male and female participants in the three dimensions of perceived parental rearing behaviour.
3. H3: There will be significant differences between male and female participants in the three dimensions of sibling relationships.
4. H4: There will be significant differences in the three dimensions of perceived parental rearing behaviour based on sibling gender dyads (same-gender vs. mixed-gender siblings).
5. H5: There will be significant differences in the three dimensions of sibling relationships based on sibling gender dyads (same-gender vs. mixed-gender siblings).

Method

Design

This study employed a correlational and comparative cross-sectional design to examine the relationship between perceived parental rearing behaviour and sibling relationships. Additionally, it explored group differences in perceived parental rearing behaviour and sibling relationships based on participant gender and sibling gender dyads (same-gender vs. mixed-gender siblings).

Sample

Data was collected from participants aged 18-30 years who have at least one full sibling (i.e., both siblings share the same biological parents). Total data was collected from 95 participants, out of which 5 responses were removed during the data cleaning process. The final analysis was run on a total of 90 responses. The average age of the sample was approximately 23 years. A total of 42 participants identified as female, while 48 participants identified as male.

Regarding the number of siblings, 62 participants reported having one sibling, while 28 participants reported having two siblings. Among the participants with just one other sibling, 35 participants identified with the same gender as their sibling, while 27 participants identified with different genders. Purposive sampling technique was utilized for the data collection process.

Tools

Egna Minnen Beträffande Uppfostran- Short Form (s-EMBU)

The EMBU (Swedish acronym for 'Egna Minnen Beträffande Uppfostran,' translating to 'My memories of upbringing') is among the most widely utilized measures for the assessment of adults' perceptions of their parents' rearing behaviour (Rapee, 1997). The scale provides four factorially-derived subscale measures: Rejection, Emotional Warmth, (Over) Protection and Favouring Subject, and the full scale comprises a total of 81 items.

In the present study, a short form (s-EMBU) consisting of three scales, Rejection, Emotional Warmth, and Protection, with 7, 6, and 9 items, respectively (in addition to 1 unscaled item) was used. The 23-item s-EMBU is recommended as a reliable functional equivalent to the full version. The scale has demonstrated good internal consistency, with Cronbach's alpha values typically falling above .72 for all subscales and across different national samples (Arrindell et al., 1999). Strong evidence for the convergent and discriminant validity of the s-EMBU

has also been established, supporting its effectiveness in capturing key dimensions of perceived parental rearing (Arrindell et al., 2000).

Adult Sibling Relationship Questionnaire - a very short form (ASRQ-VSF)

The Adult Sibling Relationship Questionnaire - a very short form (Lanthier & Stocker, 2014) was also used. The scale is a reliable and valid 18-item measure used to assess the quality of adult sibling relationships.

This scale evaluates the dimensions of Warmth (6 items), Conflict (6 items), and Rivalry (6 items) in the relationship between siblings. The Warmth and Conflict items are rated on a 5-point Likert scale ranging from 'hardly at all' to 'extremely much', while the Parental favouritism items are rated on a 5-point scale from 'participant usually favoured' to 'sibling usually favoured'. The psychometric properties of the ASRQ-VSF are satisfactory, with Cronbach's alpha ranging from .88 to .97. Scale scores are calculated by taking the mean of the 6 items that make up each scale.

Data Analysis

The data collected in the present study violated the key assumptions of parametric testing, and hence, non-parametric tests have been utilized to run the following analysis for the various objectives and hypotheses laid out for the study:

1. Spearman's Rank Order Correlation: To examine the relationship between Perceived Parental Rearing Behaviour and Sibling Relationships.
2. Mann-Whitney U Test: To perform a comparative analysis between male and female participants on Perceived Parental Rearing Behaviour.
3. Mann-Whitney U Test: To perform a comparative analysis between male and female participants on the three dimensions of sibling relationship.
4. Mann-Whitney U Test: To perform a comparative analysis on Perceived Parental Rearing Behaviour based on sibling gender dyads (same-gender vs. mixed-gender siblings).
5. Mann-Whitney U Test: To perform a comparative analysis on the three dimensions based on sibling gender dyads (same-gender vs. mixed-gender siblings).

Procedure

A Google Form was created, which contained complete and accurate information about the study and ethical practices pertaining to the privacy and confidentiality of the data collected.

Questions collecting participants' demographic information and the items from two scales were also included. The s-EBMU and ASRQ-VSF questionnaires were administered and took about 10-15 minutes for the participants to complete. A section was also included to thank the participants for their time and consideration.

Ethical Considerations

During the conduction of this study, due ethical considerations were followed. The participants were properly briefed and were given a fair idea about what the present study revolved around. They were also told that the collected data would be analyzed and narrowed down to suit the needs of the research's aim. Informed consent was taken for voluntary participation of the participants in the study. The participants were assured that all the recorded data would remain highly confidential and would not be disclosed to anyone other than the researchers. It was made sure that the emotional and psychological sentiments of the participants were not harmed by the questions included in the study.

Results

Table 1

Correlational Analysis between Perceived Parental Rearing Behaviour and the Various Dimensions of Sibling Relationship

	1	2	3	4	5	6
1. s-EMBU Rejection	-	-	-	-	-	-
2. s-EMBU Emotional Warmth	-0.340**	-	-	-	-	-
3. s-EMBU Over Protection	0.574***	-0.122	-	-	-	-
4. ASRQ-VSF Warmth	-0.146	0.420***	-0.024	-	-	-
5. ASRQ-VSF Conflict	0.222*	0.039	-0.005	-0.12	-	-
6. ASRQ-VSF Parental Favouritism	0.201	-0.017	0.098	-0.044	0.430***	-

*p < .05.**p < .01. ***p < .001.

A significant positive correlation was found between s-EMBU Rejection and ASRQ-VSF Conflict, $r(88) = 0.22$, $p < .05$, indicating that higher perceived parental rejection is associated with increased sibling conflict.

A significant positive correlation was also observed between s-EMBU Emotional Warmth and ASRQ-VSF Warmth, $r(88) = 0.42$, $p < .001$, suggesting that greater perceived parental emotional warmth is associated with increased emotional warmth in sibling relationships.

Within the s-EMBU subscales, Rejection was significantly negatively correlated with Emotional Warmth, $r(88) = -0.340$, $p < .01$, indicating that higher parental rejection is associated with lower emotional warmth. Additionally, Rejection showed a strong positive correlation with Overprotection, $r(88) = 0.574$, $p < .001$, suggesting that increased perceived rejection is also associated with heightened parental overprotection.

For the ASRQ-VSF subscales, a significant positive correlation was found between Conflict and Parental Favouritism, $r(88) = 0.430$, $p < .001$, suggesting that higher perceived parental favouritism is associated with increased sibling conflict.

Table 2

Comparative Analysis of Perceived Parental Rearing Behaviour Subscales between Genders

Logistic Parameter	Female (n = 42)			Male (n = 48)			U	p	r_{rb}
	M	SD	SE	M	SD	SE			
s-EMBU Rejection	11.4	3.94	0.609	9.83	3.29	0.475	749	0.03	0.257
s-EMBU Emotional Warmth	17	4.09	0.631	16.44	16.5	0.514	915	0.453	0.092
s-EMBU Over Protection	22.6	5.43	0.838	18.56	4.73	0.683	581	<0.001	0.423

Comparative analysis showed that for the subscale Emotional Warmth, no statistically significant difference was observed between female and male participants, (U= 915, p= .453). The effect size, r_{rb} = 0.092, indicated a negligible effect.

For the Rejection subscale, a statistically significant difference was found between female and male participants (U= 749, p= .03), indicating that female participants reported experiencing higher levels of parental rejection compared to male participants.

The effect size, r_{rb} = 0.257, indicated a small effect. Similarly, for the Overprotection subscale, female participants reported significantly higher parental overprotection than male participants (U= 581, p<.001), indicating that female participants reported higher levels of overprotective behaviour displayed by their parents as compared to male participants. The effect size, as measured by rank-biserial correlation, was r_{rb} = 0.423, indicating a medium effect.

Table 3

Comparative Analysis of Sibling Relationship Dimensions Between Genders

Logistic Parameter	Female (n = 42)			Male (n = 48)			U	p	r_{rb}
	M	SD	SE	M	SD	SE			
ASRQ-VSF Warmth	3.81	1.065	0.164	3.58	1.028	0.148	883	0.29	0.124
ASRQ-VSF Conflict	3.17	0.824	0.127	3.08	1.048	0.151	957	0.664	0.051
ASRQ-VSF Parental Favouritism	2.93	0.677	0.104	2.96	0.683	0.098	997	0.911	0.011

Comparative analysis showed that for the Warmth subscale, no statistically significant difference was observed between female and male participants (U = 883, p = .290). The effect size, r_{rb} = 0.124, indicated a negligible effect. For the Conflict subscale, no statistically significant difference was observed between female and male participants (U = 957, p = .664). The effect size, r_{rb}= 0.051, indicated a negligible

effect. Similarly, for the Parental Favouritism subscale, no statistically significant difference was observed between female and male participants (U = 997, p = .911). The effect size, r_{rb}= 0.011, also indicated a negligible effect. This suggests that both female and male participants report similar sibling relationships with no significant differences.

Table 4

Comparative Analysis of Perceived Parental Rearing Behaviour Subscales Between Sibling Gender Dyads (Same-Gender vs. Mixed-Gender Siblings)

Logistic Parameter	Same-Gender (n = 35)			Mix-Gender (n = 27)			U	p	r_{rb}
	M	SD	SE	M	SD	SE			
s-EMBU Rejection	10.46	3.346	0.566	11.19	4.394	0.846	470	0.977	0.005
s-EMBU Emotional Warmth	17.4	3.875	0.655	16.67	4.438	0.854	427	0.517	0.097
s-EMBU Over Protection	19.91	5.031	0.85	21.63	6.283	1.209	406	0.344	0.141

Comparative analysis showed that for the Rejection subscale, no statistically significant difference was observed between participants with same-gender siblings and those with mixed-gender siblings ($U = 470$, $p = .977$). The effect size, $r_{rb} = 0.005$, indicated a negligible effect. For the subscale Emotional Warmth, no statistically significant difference was observed between sibling gender dyads ($U = 427$, $p = .517$). The effect size, $r_{rb} = 0.097$, indicated a negligible effect.

Similarly, for the subscale Overprotection, no statistically significant difference was found between participants with same-gender and mixed-gender siblings ($U = 406$, $p = .344$). The effect size, $r_{rb} = 0.141$, indicated a small effect. This suggests that for both dyads, parental rearing behaviour is being perceived more or less similarly, without any noticeable differences.

Table 5

Comparative Analysis of Sibling Relationship Dimensions Between Sibling Gender Dyads (Same-Gender vs. Mixed-Gender Siblings)

Logistic Parameter	Same-Gender (n = 35)			Mix-Gender (n = 27)			U	p	r_{rb}
	M	SD	SE	M	SD	SE			
ASRQ-VS Warmth	3.54	1.197	0.202	3.67	1.109	0.214	445	0.686	0.059
ASRQ-VSF Conflict	3.11	0.9	0.152	3.19	0.962	0.185	449	0.73	0.049
ASRQ-VSF Parental Favouritism	3	0.686	0.116	3.04	0.587	0.113	470	0.97	0.005

Comparative analysis showed that for the Warmth subscale, no statistically significant difference was observed between participants with same-gender and mixed-gender siblings ($U = 445$, $p = .686$). The effect size, $r_{rb} = 0.059$, indicated a negligible effect. For the Conflict subscale, no statistically significant difference was found between sibling gender dyads ($U = 449$, $p = .730$). The effect size, $r_{rb} = 0.049$, indicated a negligible effect. Similarly, for the Parental Favouritism subscale, no statistically significant difference was observed between participants with same-gender and mixed-gender siblings ($U = 470$, $p = .970$). The effect size, $r_{rb} = 0.005$, also indicated a negligible effect. This suggests that participants from both groups report similar sibling relationships with no significant differences.

Discussion

The present study aimed to understand the impact of the participants' perceived parental-rearing behaviour on their relationship with their sibling(s). Spearman's Rank Order Correlation was conducted to examine the relationship between perceived parental rearing behaviour and sibling relationships. The results showed a significant relationship between the Rejection subscale of the s-EMBU and Conflict on the ASRQ-VSF. This suggests that parents who are perceived as more rejecting may inadvertently contribute to greater conflict between siblings. One possible explanation is that rejection can trigger competition for parental approval or lead to displaced frustration between siblings. According to Kanyas (2008), higher parental rejection, particularly from the mother, predicts increased jealousy and conflict and decreased positivity in sibling relationships. This may be rooted in an evolutionary need to receive love and care from one's primary caregivers. Additionally, when a child perceives a parent as rejecting, it can hinder the development of a positive self-concept, resulting in insecurity in themselves and others (Baradon et al., 2005).

The results also revealed a significant relationship between Emotional Warmth on the s-EMBU and Warmth on the ASRQ-VSF. This finding indicates that emotionally warm parenting may encourage more affectionate and supportive sibling relationships. Parents who model warmth and positive interpersonal behaviour can foster similar qualities between siblings. Research grounded in attachment and social learning perspectives suggests that parental responsiveness serves as an internal working model for children, shaping the way they engage in other relationships, including those with their siblings (Milevsky et al., 2011).

Mann-Whitney's U test was run to compare gender differences and differences in sibling gender dyads (same vs. mixed-gender) for both perceived parental rearing behaviour and sibling relationship. No statistically significant differences were found on any of the sibling relationship subscales when comparisons were made based on the gender of the participants, indicating that male and female participants reported similar experiences within their sibling relationships. In terms of perceived parental rearing behaviour, no significant gender differences were observed for Emotional Warmth. However, significant differences were found for the Overprotection and Rejection subscales, with female participants reporting higher levels of both overprotective and rejecting parental behaviours compared to male participants.

These findings can be largely attributed to gender differences, especially when it comes to Indian homes, where such gender differences are often noted, owing to the differential social roles assigned to both the genders (Datta, 2023). The higher scores for overprotection reported by females may be attributed to the strong emphasis placed on a daughter's sexual purity, which is closely tied to the family's honour and social status (Kallivayalil, 2004). Fearing any compromise of this purity, Indian parents tend to be more controlling of their daughters, placing greater restrictions on dating and socialisation (Dasgupta, 1998; Segal, 1991).

The difference in perceived rejection may be linked to the longstanding cultural preference for sons in India. Sons are typically seen as future providers and custodians of the family name, while daughters, expected to marry out, are viewed as less economically valuable (Ahlawat, 2013). This son preference, rooted in socio-cultural and economic factors, may contribute to subtle or overt forms of daughter discrimination, potentially leading to higher perceptions of rejection among female participants. However, since the gender difference in rejection had a small effect size, this finding warrants further investigation in future research.

No statistically significant differences were found in perceived parental rearing behaviour or sibling relationship based on sibling gender dyads. The small sample size of the current study may have limited its ability to detect subtle differences, potentially contributing to these non-significant findings. While some previous studies have reported differences based on sibling gender composition, many of them have

relied on small or demographically limited samples, making it difficult to draw generalizable conclusions. Moreover, the literature on sibling attachment in adolescence and adulthood remains relatively sparse. However, studies have speculated that during early adulthood, due to all the life changes associated with adulthood, siblings may develop stronger bonds and that having a good relationship with one's sibling in this period can become a supportive relationship which can prove to be beneficial during this time of change (Conger et al., 2004).

Overall, the findings of this study provide an insight into the ways in which parent-child relationships can interact with and affect the relationship between siblings. Further studies in this area can help gain further insight into this interaction.

Future Directions

The present findings contribute to existing literature by reinforcing the link between parental rearing styles and sibling relationship quality. The significant gender differences in perceived overprotection and rejection, with female participants reporting higher levels, point to continued gendered parenting practices in Indian households. Since such parenting behaviours are linked to negative psychological outcomes like anxiety, low self-esteem, and maladaptive attitudes (Dash & Sriranjan, 2014; Dwairy, 2010), the findings highlight the need for culturally sensitive parent education efforts that promote autonomy and emotional support across genders.

The lack of statistically significant gender differences observed in sibling relationship quality, either by participant gender or sibling gender dyads, raises the possibility that factors beyond parenting, such as shared experiences, personality traits, and mutual support during transitions, may play a stronger role in shaping sibling dynamics (Abbey & Dallos, 2004; Brody, 1998; Conger et al., 2004). These aspects warrant greater investigation in future studies.

Finally, the prevalence of non-significant findings, especially regarding sibling gender dyads, may partially reflect the study's small sample size. Replicating the study with larger and more diverse samples could provide clearer insights into how gender and family structure interact to shape relational dynamics within Indian families.

Future studies can also address the limitations of this study and include participants from all genders and from non-normative family structures to gain a more holistic understanding.

Conclusion

The present study examined how perceived parental rearing behaviours shape the nature of sibling relationships in Indian families. Findings suggest that when parents' behaviour is perceived to be warm, the sibling relationship is also found to be emotionally warm. On the other hand, it was found that perceived parental favouritism is associated with increased levels of conflict between siblings. These patterns suggest that the quality of sibling relationships may, in part, mirror the emotional environment created by parents.

Comparative analysis also found that female participants reported higher over-protective behaviours and rejection from parents as compared to male participants. These findings likely reflect persistent gendered parenting norms within Indian households, where daughters may be subject to stricter controls and less affirmation. However, no notable differences were found in sibling relationship quality across participant gender or sibling gender dyads, suggesting that sibling bonds may be shaped by other factors such as shared experiences and mutual support.

While the findings offer insight into the influence of parenting on sibling dynamics, they are limited by sample size and scope. Future research with larger and diverse samples and broader family structures could provide a deeper understanding of these relationships. Deepening our understanding of how parenting shapes sibling relationships, especially within the unique sociocultural context of India, can help inform family-centred psychological practices aimed at creating healthier and more supportive home environments.

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Scrolling for Solace: Post-COVID-19 Social Media Use, Loneliness, and Mental Health in Indian Emerging Adults

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Abstract: The COVID-19 pandemic significantly altered social interactions, leading individuals to rely heavily on social media for connection during periods of physical isolation. This study examines perceived changes in social media use post-COVID-19 among Indian emerging adults (19–30 years) and its impact on loneliness and mental health functioning. Utilising a cross-sectional research design with convenience sampling, responses from 150 emerging adults were analysed. Participants completed the UCLA Loneliness Scale, the Mental Health Continuum-Short Form (MHC-SF), and a Social Media Use questionnaire that assessed usage patterns. Data were analysed using ANOVA and Scheffé's post-hoc test, revealing that changes in time spent on social media significantly influenced loneliness and mental health functioning. Specifically, participants who perceived an increase in social media use post-COVID-19 reported higher loneliness and lower mental health functioning compared to those who perceived a decrease. Additionally, most participants reported using social media for emotional regulation and engaging in habitual use for distraction. These findings underscore the role of social media in influencing the psychological well-being of emerging adults, necessitating further exploration of its long-term effects.

Keywords: social media use, COVID-19, loneliness, mental health, emotional regulation

Introduction

The COVID-19 pandemic significantly transformed various aspects of human life, especially how individuals interacted with and engaged in social media platforms (Lin et al., 2023). The social connections and physical closeness, once taken for granted and considered part of normal functioning, were halted with social distancing and physical isolation. During prolonged lockdowns and uncertainty, social media served as a lifeline for individuals, enabling them to stay connected, seek emotional support, and navigate the unprecedented challenges brought on by the crisis (Nawaz et al., 2023). Yet, there was wide-ranging disparity in how the impacts of the pandemic were reported across India (Vasudevan et al., 2021).

The impact of COVID-19 was felt globally across demographics, as physical and mental health took a hit, which raised questions of belongingness and togetherness in communities. The closing of civic and commercial communities, third places, and alternative social spaces resulted in reduced social connection and impacted the mental health of young adults (Borowski

& Stathopoulos, 2023). Young people expressed the importance of community ties and the need to strengthen social capital, which is defined as the sense of connectedness and unity of social groups (Barker et al., 2022). Social media functioned not only as a vital means of information and communication but also as a coping mechanism to regulate moods amidst the anxiety and stress caused by the pandemic.

As daily life was disrupted, there was an increase in virtual interactions, which provided two benefits: coping with solitude and maintaining work and income. Even before the onset of COVID-19, studies focused on social media's role as a platform for connection, bonding, building social capital, and developing psychological well-being (Chen & Li, 2017). The compensatory model of Internet-related activities suggests that online interactions can alleviate negative emotions stemming from distressing circumstances, such as loneliness and anxiety (Boursier et al., 2020). This reliance on digital interactions may offer momentary respite from feelings of isolation and anxiety; however, such relief is often fleeting. Furthermore, increased virtual presence does not necessarily lead to greater closeness, due to the blurring

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of boundaries and doubts about the longevity of virtual connections (Raj & Bajaj, 2021).

Studies found that adolescents attempt to alleviate negative emotions through smartphone use, a behaviour that paradoxically exacerbates emotional distress and leads to deeper psychological issues (de Freitas et al., 2023). It was concerning when a whole generation had to rely on virtual connections provided by social media in response to a global pandemic.

While social media served as a vital means of information, communication, and connection during the pandemic, studies demonstrated that excessive or maladaptive use of these platforms negatively impacted individuals' ability to regulate emotions and maintain positive mental health. The literature highlights a complex interplay between social media engagement, emotion regulation strategies employed, and the collective influence of these factors on psychological well-being (Chen & Li, 2017; Gerrard, 2020; Herrera-Peco et al., 2023). Higher social media use, assessed in terms of hours and frequency, was linked with compulsive use (Aladwani & Almarzouq, 2016), social comparison (Vogel, 2014), rumination (Dibb & Foster, 2019), and lower levels of happiness (Brooks, 2015). Although many studies documented the addictive nature of social media, few examined how social media use was associated with emotional regulation and environmental changes.

Loneliness has been associated with reduced well-being, impaired executive function, accelerated cognitive decline, poor physical health, impaired immunity, anxiety, and depressive symptoms, and is found to be twice as harmful to physical and mental health as obesity (Holt-Lunstad et al., 2015). The experience of loneliness interacts with age, gender, and culture. It is reported to be higher in individualistic cultures compared to collectivistic ones, greater in men compared to women, and reduced with age. Interestingly, media exposure to loneliness and the stigma around it contributes to these outcomes (Barreto et al., 2020). Young adults report higher levels of loneliness with increased social media use and lower social support-seeking behaviour compared to older

adults (Lisitsa et al., 2020).

Limited studies address these associations in the Indian demographic. Prior literature presented two perspectives on loneliness and social media use: loneliness predicted problematic social media use, and conversely, problematic social media use predicted increased loneliness (O'Day & Heimberg, 2021). The term "problematic use" denotes a distinct pattern from simple, frequent, or daily usage, being more strongly associated with perceived social isolation concerns (Primack et al., 2017).

Systematic reviews reveal that loneliness affects mental health through symptoms of depression, impaired social functioning, bipolar disorder, and anxiety disorder (Wang et al., 2018). The feeling of loneliness and the need for social connection are intricately linked to well-being and mental health. Several models attempt to conceptualize this association. The mental health continuum model defines mental health as a syndrome of positive feelings (emotional well-being), positive functioning in life (psychological well-being), and engagement in community life (social well-being) (Keyes, 2002). This model projects mental health on a continuous linear scale, with mental health and mental illness at two extreme ends. It aids in recognizing behavioural patterns that need attention, such as identifying impairments, gathering information about mental states over time, seeking professional help, and detecting early signs of distress and disorder symptoms. Relatively higher levels of social media use among young adults are linked to depression and anxiety (Primack et al., 2017), low efficiency and performance (Brooks, 2015), less positive mood (Fassi et al., 2025), decreased life satisfaction (Kross et al., 2020), increased propensity for addictive behaviours (Vogel et al., 2014), and disturbances in circadian rhythms and sleep (Scott, 2019; Woods & Scott, 2016).

Emerging adults are considered a particularly vulnerable population due to the unique characteristics of this developmental stage, which include heightened emotional sensitivity, a strong desire for social belonging, and a tendency toward extensive digital

technology use (Gonsalves et al., 2019; Sigurvinsdóttir et al., 2020). Given the characteristics of emerging adulthood and the pivotal role of emotional regulation in navigating psychological challenges, it is crucial to examine how social media use, now ubiquitous in daily life, affects this essential skill and, in turn, overall mental health and well-being.

Although emerging adults are the highest users of social media, individuals aged 18–34 are also most likely to report loneliness, as many struggle to form meaningful relationships and adapt to major life transitions. Despite being more digitally connected than ever, loneliness among this group is rising. Whether social media is used as an effective coping mechanism in this context remains an open question. The post-pandemic younger population has been found to be more susceptible to symptoms of anxiety, stress, and depression, necessitating increased support (Varma et al., 2020). Specifically, young adult females who reported higher perceived social support pre-pandemic also experienced higher levels of loneliness during the pandemic (Lee et al., 2020).

The primary objective of this study was to compare levels of loneliness and mental health functioning among three distinct groups of Indian emerging adults: those who reported an increase in social media usage during the pandemic, those who reported a decrease, and those who reported no significant changes in social media consumption patterns. Additionally, the study aimed to examine the perceived use of social media for emotional regulation and the potential presence of compulsive social media usage within this population.

Method

The study aimed to examine perceived changes in social media use following the COVID-19 pandemic and the relationship between social media use, loneliness, and positive mental health functioning. The specific objectives were:
- To assess perceived changes in social media usage post-COVID-19.
- To explore whether there are differences in loneliness and mental health functioning among groups based on perceived changes in social media

use patterns (increase, decrease, or no change in time spent).

Participants

A sample of 150 emerging adults (aged 19–30 years) was recruited using convenience sampling. Participants had been using social media platforms for more than four years and were Indian nationals from urban, semi-urban, and rural areas, with at least a Grade 8 education and fluency in English. Informed consent was obtained, and socio-demographic details (age, gender, education, and employment status) were collected.

Measures

Social Media Use Questionnaire

This 20-item self-constructed instrument was designed by the authors to assess current and pre-COVID-19 social media usage patterns. It included both multiple-choice items and Likert-scale items. Time spent was assessed using fixed categorical ranges (e.g., less than 2 hours; 2.1–4 hours; 4.1–6 hours; 6 hours or more). Likert-scale items evaluated emotional regulation, platforms used, and distracted habitual use. Content validity was established by five domain experts independently rated each item on relevance and clarity. The average item-level CVI (I-CVI) was 0.80. Internal consistency reliability (Cronbach's α = .80) was obtained via a pilot study (n = 15). Test-retest reliability was not assessed due to time constraints but is recommended for future research.

UCLA Loneliness Scale (Version 3)

Developed by Russell (1996), this 20-item scale measures subjective feelings of loneliness and social isolation. Studies conducted in India have established the scale's reliability, validity, and contextual relevance. Internal consistency was strong (Cronbach's α = .859), and it demonstrated good construct validity with other measures of loneliness and social support (r = −.414, p = .01) (Suri & Garg, 2020).

Mental Health Continuum–Short Form (MHC-SF)

This 14-item self-report scale, developed as a concise version of the longer Mental Health Continuum–Long Form (MHC–LF), assesses emotional, psychological, and social well-being and provides a categorical diagnosis of positive mental health (Keyes, 2002). Each item is rated on a 6-point Likert scale ranging from 0 (Never) to 5 (Every day), with higher scores indicating greater well-being. The instrument has demonstrated strong internal consistency (Cronbach's α = .90) across multiple studies for each of the subscales.

Design and Procedure

A cross-sectional design was adopted. Data were collected via an online survey incorporating the socio-demographic form, Social Media Use Questionnaire, UCLA Loneliness Scale, and MHC-SF. The form took approximately 20 minutes to complete.

Data Analysis

Descriptive statistics were used to summarize participant characteristics and study variables. The Shapiro-Wilk test assessed normality, and Levene's test evaluated homogeneity of variance. A one-way Analysis of variance (ANOVA) examined the effects of changes in social media use on loneliness and mental health. Post hoc comparisons using Scheffé's test identified significant group differences.

Ethical Considerations

The study adhered to established ethical guidelines. Participation was voluntary, confidentiality was maintained, and approval was obtained from the institutional ethics committee at Jyoti Nivas College Autonomous, Bangalore.

Results

At the time of the survey, all participants had been using social media for more than four years. Of the 150 participants, 137 (91.34%) reported a change in their social media usage post-COVID-19, while 13 (8.67%) indicated no change. A majority of participants (94.16%; *n* = 129) among those who noted a change (*n* = 137) reported an increase in time spent on social media following the COVID-19 outbreak. In contrast, very few (5.83%, *n* = 8) reported a decrease in usage (Figure 1). The most pronounced changes were observed among those who previously used social media for 2–4 hours per day and subsequently increased usage to more than 4 hours post-COVID-19 (Figure 2). 84 participants (56%) out of the total sample of 150, reported using social media for emotional regulation, while 137 (91%) displayed patterns of distracted habitual use (Figure 2 & Figure 3).

Figure 1

Pre-COVID-19 and Post-COVID-19 Social Media Use Time
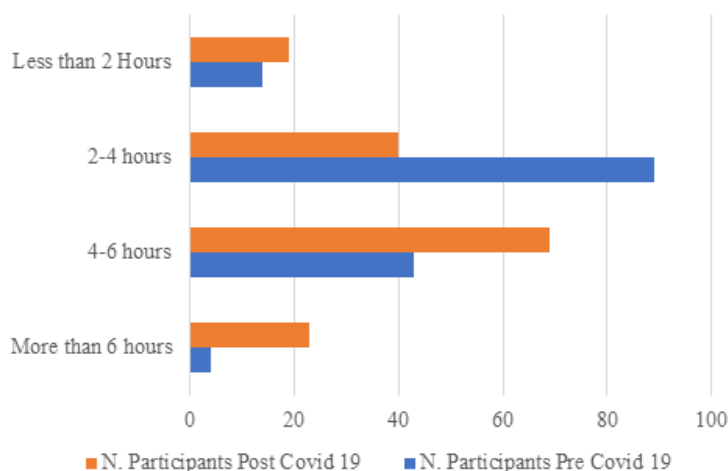
Figure 2

Pie chart on Participants' Reported Use of Social Media to Regulate Emotions.
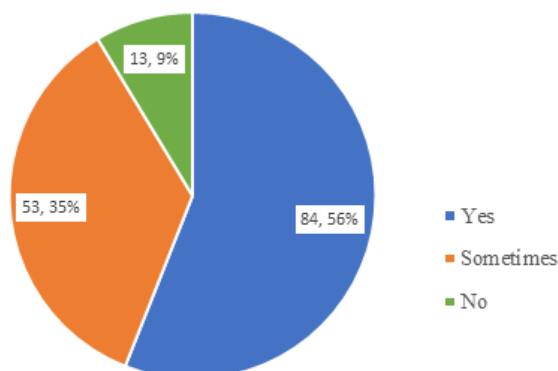
Figure 3

Pie chart on Participants Reporting Distracted Habitual Social Media Use
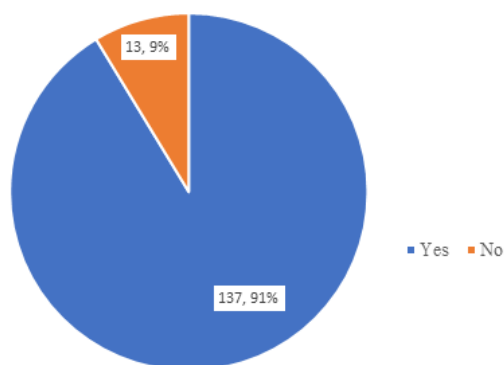
An analysis of variance (ANOVA) was conducted to examine the effect of perceived changes in social media use post-COVID-19 (categorized as increased time, no change, and decreased time) on two dependent variables: loneliness and positive mental health functioning. Shapiro-Wilk scores were considered, and assumptions of normality, homogeneity, and independent observations were met.

The ANOVA results revealed a statistically significant difference in loneliness scores among the three groups, $F(2,147) = 4.75$, $p = .010$. Post hoc comparisons using Scheffé's test indicated that participants who reported a decrease in social media use experienced significantly lower loneliness ($M = 47.8$, $SD = 4.4$) compared to those who reported an increase in social media use ($M = 52.2$, $SD = 4.7$), $p = .01$. No significant differences in loneliness scores were found between those who reported an increase and those who reported no change ($p = .47$), or between the no change and decrease groups ($p = .502$) (see Table 1 and Table 3).

Regarding mental health functioning, the ANOVA revealed a statistically significant difference among the three groups, $F(2,147) = 4.45$, $p = .013$. Participants who reported an increase in social media use ($M = 32.37$, $SD = 10.02$) had significantly lower MHC scores than those who reported a decrease in usage ($M = 41.54$, $SD = 11.01$), $p = .017$. However, no significant differences in MHC scores were observed between the increase and no change groups ($p = .64$), or between the no change and decrease groups ($p = .39$) (see Table 2).

Table 1

ANOVA Output Table for Loneliness Scores

Loneliness Scores	M	SD	F	p
Increased	52.24	4.79	4.75	.010
No change	50.30	5.57		
Decreased	47.81	4.49		

Table 2

ANOVA Output Table for MHC Scores

MHC Scores	M	SD	F	p
Increased	32.37	10.02	4.45	.013
No change	35.50	9.92		
Decreased	41.54	11.10		

Table 3

Scheffe's Post Hoc Analysis of Group Variance in Loneliness and MHC Scores

Dependent Variable	(I)Perceived change in social media use post-COVID-19	(J) Comparisons	Mean Difference (I-J)	Std. Error	p	95% Confidence Interval	
						Lower Bound	Upper Bound
Loneliness Scores	Increased	No change	1.94	1.58	.47	-1.97	5.86
		Decreased	4.42*	1.51	.01	.67	8.17
	No change	Increased	-1.94	1.58	.47	-5.86	1.97
		Decreased	2.48	2.10	.50	-2.73	7.69
	Decreased	Increased	-4.42*	1.51	.01	-8.17	-.67
		No change	-2.48	2.10	.50	-7.69	2.73
MHC SCORE	Increased	No change	-3.12	3.31	.64	-11.31	5.06
		Decreased	-9.17*	3.16	.01	-17.01	-1.33
	No change	Increased	3.12	3.31	.64	-5.06	11.31
		Decreased	-6.04	4.40	.39	-16.94	4.85
	Decreased	Increased	9.17*	3.16	.01	1.33	17.01
		No change	6.045	4.40	.39	-4.85	16.94

Discussion

The findings underscore the critical role of social media during the COVID-19 pandemic, a period when lockdowns and social distancing measures drove unprecedented levels of digital engagement. In our study, 86% of emerging adults reported an increase in social media use following the outbreak. This aligns with global research trends that suggest young people are particularly susceptible to increased online activity during times of social disruption (Chen & Li, 2017; de Freitas et al., 2023; Primack et al., 2017; Raj & Bajaj, 2021).

Importantly, the data showed that participants who increased their social media use reported higher loneliness and lower mental health functioning compared to those who reported a decrease. These results support existing literature that has linked excessive or habitual social media engagement, especially when driven by emotional regulation or distraction, to poor psychological outcomes, including heightened loneliness and dysregulated affect (Herrera-Peco et al., 2023).

In the context of Indian emerging adults, this study adds a crucial perspective by revealing that heightened digital consumption during periods of crisis may serve as both a coping mechanism and a risk factor for adverse mental health outcomes. While digital platforms provided essential means for maintaining social connections during the pandemic, they also amplified vulnerabilities. In particular, habitual online behaviour adopted for emotional regulation can lead to cognitive overload and emotional dysregulation, factors that have been empirically linked to increased loneliness (Suri & Garg, 2020; Varma et al., 2020). Further, research in India has demonstrated that excessive reliance on digital communication diminishes face-to-face interactions, thereby exacerbating feelings of isolation and loneliness (Raj & Bajaj, 2021).

These findings hold implications for mental health professionals, educators, and policymakers. Clinicians might consider integrating strategies to address problematic digital behaviours into therapy, such as mindfulness-based interventions and cognitive-behavioural techniques, which have demonstrated efficacy in supporting emotional regulation and reducing compulsive social media use (Kuss & Griffiths, 2017).

Implications for Mental Health Interventions and Policy

Based on the study's findings, several implications can be drawn for mental health interventions and policy recommendations:

1. **Enhanced Mental Health Interventions.** Mental health practitioners are encouraged to integrate assessments of digital behaviour and social media use into their clinical practice. Evidence supports the incorporation of cognitive-behavioural therapy (CBT) and mindfulness-based approaches for regulating emotional responses that are exacerbated by digital overuse (Kuss & Griffiths, 2017). For instance, structured interventions that teach self-regulation strategies and stress management techniques may help individuals mitigate the negative psychological impact of excessive social media use (Naslund et al., 2016).

2. **Utilization of Social Media for Destigmatization, Psychoeducation, and Therapeutic Engagement.** Social media can be strategically leveraged to support mental health by facilitating destigmatization, providing psychoeducation, and enhancing therapeutic outreach. Platforms such as Instagram, Twitter, and Facebook have been successfully used to disseminate accurate mental health information, challenge stigma, and normalize help-seeking behaviours (Latha et al., 2020). In addition, online forums and support groups hosted on social media platforms provide spaces for individuals to share experiences and receive peer validation and emotional support, which can reduce isolation and foster a sense of belonging (Naslund et al., 2016). Mental health professionals are also increasingly engaging with social media to deliver brief

therapeutic content, host live sessions, and direct users to professional resources—practices that may be particularly beneficial for digitally engaged populations like emerging adults (Molina Ruiz et al., 2022).

3. **Digital Literacy Programs.** Educators and policymakers should prioritize the implementation of digital literacy programs that empower emerging adults with skills to critically evaluate online content, manage screen time, and maintain healthy digital habits. Research has shown that digital literacy education can enhance self-regulation and reduce the adverse effects of media overuse (Odgers & Jensen, 2020). Integrating these programs into school and university curricula could foster proactive strategies for managing digital consumption.

4. **Collaboration with Social Media Platforms.** There is a strong need for collaboration between mental health experts, policymakers, and social media companies. Platforms could integrate built-in digital wellness tools, such as usage alerts, periodic breaks, and easy access to mental health resources, to help users monitor their time online. Such collaborative initiatives can create safer digital environments, reducing the risk of compulsive use and its associated mental health consequences.

5. **Policy Initiatives and Public Awareness Campaigns.** Government agencies and non-governmental organizations should develop public awareness campaigns addressing the impact of excessive social media use on mental health. Policies that support research funding for digital behaviour and mental health, as well as the establishment of national guidelines for healthy online engagement, could provide long-term benefits. These measures have been recommended by scholars aiming to bridge the gap between technology use and public health outcomes (Thompson et al., 2019).

6. **Holistic and Longitudinal Research.** Finally, future research should adopt mixed-methods and longitudinal designs to better capture the evolving nature of social media use and its impact on mental health. Such studies should include moderating variables such as personality traits, socio-economic status, and pre-existing mental health conditions to further tailor digital interventions.

Limitations

While the study offers valuable insights, several limitations must be acknowledged. The sample consisted solely of emerging adults aged 19–30 years, and the relatively small sample size and convenience sampling method limit the generalizability of the findings. Additionally, group comparisons were constrained by unequal sample sizes.

The study relied on cross-sectional, self-reported data, which prevents causal inference. Participants' responses were based on subjective perceptions of their pre- and post-COVID-19 social media use, without objective verification. The use of online self-report measures also raises concerns regarding response bias and environmental confounders. Furthermore, broader pandemic-related factors—such as stress, academic/work changes, or financial strain—may have influenced both social media behaviour and mental health outcomes but were not accounted for in this study.

Future Directions

Despite the growing body of literature on social media and mental health, findings remain mixed, highlighting the complexity of this relationship. Future research should move beyond simple metrics of time spent online to examine the social, emotional, and cognitive dimensions of social media use. One significant challenge in the field is the lack of robust, nuanced tools to assess social media use beyond frequency or screen time.

Developing validated instruments that account for users' motivations, intentions, and qualitative experiences will enable a more comprehensive understanding of how digital behaviours impact well-being. Employing interdisciplinary approaches, diverse methodologies, and contextually grounded theoretical

frameworks will be essential in capturing the evolving dynamics of social media and its implications for mental health.

Conclusion

The present study investigated the impact of the COVID-19 pandemic on social media use among Indian emerging adults, with particular emphasis on its relationship to loneliness and overall mental health functioning. The results indicate that increased digital engagement during the pandemic is associated with elevated loneliness and poorer mental health outcomes. Although social media served as an important tool for maintaining connectivity during periods of enforced isolation, its excessive use appears to contribute to cognitive overload and emotional dysregulation, which may undermine interpersonal relationships and mental well-being (Raj & Bajaj, 2021; Varma et al., 2020).

These findings carry meaningful implications across multiple domains. Clinically, mental health professionals are encouraged to incorporate assessments of digital behaviour into routine practice. Integrating cognitive-behavioural therapy (CBT) and mindfulness-based interventions could help individuals develop adaptive strategies to manage excessive online engagement (Hunt et al., 2018; Kuss & Griffiths, 2017). Educationally, embedding digital literacy into curricula may empower emerging adults to critically evaluate online content and balance their digital consumption with face-to-face interactions (Odgers & Jensen, 2020). At the policy level, collaboration between government bodies, mental health experts, and social media companies is recommended to develop and integrate digital wellness tools that offer real-time feedback on usage patterns and prompt healthy digital habits (Thompson et al., 2019).

Given the dual role of social media, acting both as a source of emotional support and a potential catalyst for loneliness, longitudinal and interdisciplinary studies are needed to elucidate the causal mechanisms underlying these effects. Future research should explore how individual differences (e.g., resilience, personality, and prior mental health status) moderate the impact of digital engagement and examine the efficacy of integrated interventions that address digital behaviour as part of mental health treatment.

Addressing these challenges requires a coordinated, multi-level approach that bridges clinical practice, education, and policy. By fostering healthier digital habits through targeted interventions and robust public health strategies, it may be possible to leverage digital engagement as a tool for positive social connection rather than as a contributor to psychological distress.

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More Alike Than Different? A Comparative Study of Self-Esteem, Body Image, And Attitudes Towards Women in Single-Sex and Co-Educational Institutions

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Abstract: Educational contexts have a profound impact on the psychosocial development of individuals, shaping their perceptions and attitudes towards themselves and their surroundings. The present study aimed to explore differences in self-esteem, body image, and attitudes towards women among female students attending single-sex and co-educational institutions. The study included 149 undergraduate female participants aged between 18 and 24 years enrolled in educational institutions within the Delhi-NCR region. An ex-post facto research design was adopted, and independent samples t-tests were used to test differences across the three variables. The results revealed significant differences in attitudes towards women ($t = 2.09$, $p = 0.04$), with female students in single-sex institutions demonstrating more liberal attitudes compared to their counterparts in co-educational settings. No statistically significant differences were found on the dimensions of self-esteem ($t = 0.52$, $p = 0.60$) and body image ($t = 0.02$, $p = 0.98$). Future research may employ mixed-methods approaches and longitudinal studies to investigate these constructs, taking into account cultural and regional variations.

Keywords: educational context, self-esteem, body image, attitudes toward women, single-sex vs. co-educational institutions

In 2022, the Kerala State Commission for Protection of Child Rights had recommended closing down boys-only and girls-only schools in the state starting from the academic year 2023–24, directing the government to prepare an action plan for implementing a co-education system across all schools. The petition that prompted this order argued that gender justice can be meaningfully ensured in government and aided schools only through the adoption of co-education. The recommendation further emphasized that co-education could play a crucial role in enhancing the mental, emotional, and social well-being of students. This move to phase out single-sex schooling brings forth a pertinent question: Is the promotion of co-education truly an effective approach to achieving gender equality, fostering inclusive social development, and supporting the holistic well-being of students?

While academic performance has long dominated debates on single-sex versus co-educational schooling, increasing attention is being paid to psychosocial outcomes such as self-esteem, interpersonal skills, emotional well-being, and gender identity formation.

Proponents of single-sex education argue that girls benefit from environments free of gender-based stereotypes and social pressures, which can enhance classroom participation, academic risk-taking, and self-confidence, particularly in male-dominated subjects like STEM (Sadker & Zittleman, 2009; Shapka & Keating, 2003). Single-sex settings are also associated with fewer distractions and stronger feelings of safety, fostering greater academic engagement (Eisenkopf et al., 2015). It is also argued that co-educational settings can pose obstacles, particularly for girls, who must navigate gendered expectations, romantic dynamics, and the male gaze during adolescence, all of which can impact self-esteem and emotional well-being (Byrne & Carthy, 2022).

However, critics caution that gender based segregation may reinforce gender binaries and limit opportunities for developing cross-gender social skills (Patterson & Bigler, 2007). For instance, Wong et al. (2018) highlighted that girls from single-sex schools may experience greater anxiety in mixed-gender environments and show lower tendencies to form

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friendships with boys. Moreover, it is argued that the cognitive and social benefits of single-sex education are often overstated, and that gender-essentialist assumptions underlying such models deserve further scrutiny (Eliot, 2013).

Building on the policy debate outlined above, researchers have attempted to understand how educational settings, whether single-sex or co-educational, affect students' psychosocial development. However, the evidence remains inconsistent, particularly with regard to self-esteem, body image, and attitudes toward women.

Extant research on self-esteem yields little consensus on whether single-sex or co-educational contexts are more advantageous. Bonds-Raacke and Nicks (2001) detected no school-type differences in female students' global self-esteem, an outcome replicated by Guglielmi (2011), who broadened the construct to appearance, peer, and academic domains and likewise reported null effects. Guglielmi argued that sophomore year, the developmental stage at which most participants were assessed is uniformly impressionable, making girls in both environments equally vulnerable to peers' evaluations. These findings stand in tension with region-specific evidence from India, where Kapoor et al. (2022) observed lower self-esteem among Delhi undergraduates in co-educational colleges, whereas Vidyarthi et al. (2022) recorded higher self-esteem for co-educational girls in Himachal Pradesh schools. Riordan's classic synthesis (1990) complicates matters further by suggesting that distractions in mixed-gender classrooms can depress academic and social outcomes after puberty, yet acknowledges that similar peer-dynamics-driven challenges can surface in single-sex settings. Taken together, the literature suggests that any link between school type and self-worth is highly contingent on developmental stage, local culture, and institutional climate.

The pattern is equally ambiguous for body-image outcomes. Early residence-hall work in the United States (Flicek & Urbas, 2003) and Australian high-school studies (Tiggemann, 2001) reported no

differences in disordered eating or body dissatisfaction by school type. Spencer et al. (2012) extended this inquiry to U.S. colleges and likewise found no disparities among first- and second-year students; however, after prolonged exposure to their respective milieus, seniors at women's colleges endorsed larger personal and perceived societal ideals than their mixed-college peers. Spencer and colleagues (2012) interpreted this shift as evidence that women enter higher education with comparable body ideals and diverge only as cumulative institutional and peer influences accrue - an interpretation reinforced by Dyer and Tiggemann's earlier observation (1996) that thinner ideals sometimes emerge in single-sex cohorts. Such temporal and contextual variation underscores that school type alone cannot explain body-image trajectories; rather, trajectories appear to be shaped by evolving peer cultures, achievement norms, and media pressures.

Attitudes towards women are attitudes based on gender role attitudes, i.e., attitudes toward the role of women in society that different people have (Spence & Helmreich, 1972). Attitudinal research offers another mosaic of results. An Istanbul study by Erarslan and Rankin (2013) observed that girls in single-sex high schools espoused more egalitarian views of family roles, although their attitudes toward work and social life did not differ from those of co-educated peers. U.S. and British work on women's colleges has long echoed this partial advantage, attributing it to feminist campus climates and visible female role models, yet similar attitudinal gains have been documented in co-educational institutions that embed robust gender-sensitisation programmes (Hartman, 2010; Sadker & Sadker, 1994; Signorella et al., 1996; Symth, 2010) Thus, while single-sex settings facilitate feminist consciousness by eliminating direct male gaze and competition, their impact is neither uniform across all facets of gender ideology nor immune to replication in well-designed mixed-gender environments.

Collectively, these demonstrate that the psychosocial effects of school gender composition remain far from settled. Divergent findings arise not only from methodological heterogeneity - differences

in age bands, cultural contexts, analytic controls, and measurement tools- but also from moderating influences such as peer dynamics, family background, and institutional ethos. The persistent inconsistency highlights a pressing need for integrative, context-specific research.

Moreover, according to the Social Identity Theory, proposed by Tajfel and Turner (1979), individuals derive a significant part of their self-concept and esteem from the social groups to which they belong. In the context of a single-sex college, students form a strong in-group identity based on their gender, which fosters a sense of belonging and positive social comparison within that group. This strengthened group identity can enhance self-esteem by promoting feelings of empowerment and solidarity among students. Moreover, the absence of the opposite gender in single-sex institutions may reduce gender-based social pressures and stereotypical judgments, potentially resulting in a healthier body image and more progressive attitudes towards women. In contrast, coeducational settings often involve more complex intergroup dynamics and social comparisons across genders, which can influence body image concerns and traditional gender attitudes differently. This would suggest that college type shapes key psychological variables through the processes of group identification and intergroup relations.

At the same time, Bronfenbrenner's ecological systems theory (1979) provides a broader framework, suggesting that development is the result of complex, interacting influences across nested environmental systems. While the educational institution (part of the microsystem) is certainly influential, it does not operate in isolation. Family attitudes, cultural expectations, media representations, and broader societal discourses (the exosystem and macrosystem) also profoundly shape young women's experiences of self and gender. From this perspective, the absence of consistent findings across studies may not indicate a lack of effect but rather reflect the reality that educational context is only one of many interwoven factors influencing psychosocial development.

As the discourse surrounding gender-segregated or co-educational institutions has gained renewed relevance in the Indian context, it becomes increasingly important to examine the available empirical evidence. Yet, there remains a notable paucity of empirical data that critically examines how different educational contexts shape the psychosocial development of female students, particularly concerning constructs as complex and socially embedded as self-esteem, body image, and gender attitudes.

While a handful of studies have examined the relationship between college type and psychological outcomes, findings across contexts and time periods remain inconclusive. Moreover, the bulk of extant literature has either prioritized academic performance or approached psychosocial constructs in isolation, neglecting the relational, institutional, and cultural dimensions through which they are often shaped. Constructs like body image and self-esteem are not static intrapsychic traits but are continually negotiated through peer interaction, exposure to gendered norms, institutional messaging, and broader socio-digital influences (Grogan, 2016; Tiggemann & Slater, 2014). Similarly, attitudes toward women, though often treated as cognitive or ideological stances, are intimately tied to lived experiences of gendered power relations, opportunities for voice and leadership, and the visibility of female role models (Eagly & Wood, 2012; Ridgeway, 2011). Given that both single-sex and co-educational institutions purport to empower women in differing ways, there is a compelling need to empirically investigate which aspects of psychosocial development are most affected by the structural and cultural affordances of these settings.

This study aims to address this empirical gap by conducting a comparative analysis of self-esteem, body image, and attitudes toward women among female undergraduate students enrolled in single-sex and co-educational colleges in the Delhi-NCR region. By focusing on a culturally and demographically diverse sample, the study seeks to move beyond universalizing claims and instead offer a contextually grounded understanding of how institutional environments interact with developmental processes. In doing so, it

also responds to a broader need for Indian scholarship that interrogates the psychological dimensions of gender socialization in educational spaces. The findings are expected to contribute not only to academic literature but also to ongoing policy conversations about gender equity, institutional reform, and the creation of psychologically supportive learning environments for women in higher education.

Method

The present study investigates the impact of different educational environments, single-sex and co-educational institutions, on self-esteem, body image, and attitudes toward women among female college students. Adopting an ex-post facto research design, the study focuses on naturally occurring distinctions within these educational settings.

Objectives

The research has the following objectives.

i. To compare the levels of self-esteem among female students in single-sex and co-educational institutions.

ii. To compare the levels of perceptions of body image among female students in single-sex and co-educational institutions.

iii. To compare the attitudes towards women among female students in single-sex and co-educational institutions

Hypotheses

The following hypotheses were formulated.

H1. There will be a significant difference in the levels of self-esteem among female students in single-sex and co-educational institutions.

H2. There will be a significant difference in the levels of perceptions of body image among female students in single-sex and co-educational institutions

H3. There will be a significant difference in the attitudes

towards women among female students in single-sex and co-educational institutions.

Sample

Utilizing a between-subjects design, 149 college students were divided into two groups: participants from single-sex colleges catering to women ($n = 87$) and those from co-educational colleges ($n = 62$). The inclusion criteria ensured that all participants were assigned female sex at birth, were undergraduate students aged 18-24 years, and were studying in Delhi-NCR. Non-undergraduate students, such as postgraduate or non-student individuals, were excluded from the study. Participants were recruited primarily through convenience sampling, with communication facilitated via WhatsApp. Comprehensive information regarding the study's purpose, procedures, risks, and benefits was provided to ensure informed consent. Data were collected using an online form, which was available to participants from November 25, 2023, to April 17, 2024. Independent sample t-tests were conducted using SPSS 16.0 to compare the data obtained from single-sex and co-educational college participants.

Measures

The Rosenberg Self Esteem Scale (RSES)

The Rosenberg Self-Esteem Scale (RSES), developed by Rosenberg (1965), is a widely used 10-item self-report measure designed to assess self-esteem. Participants respond to each statement using a 4-point Likert scale, ranging from "strongly agree" to "strongly disagree." Sample statements include "On the whole, I am satisfied with myself" and "I take a positive attitude toward myself." The responses are scored from 1 to 4, with higher scores reflecting higher self-esteem. Items 2, 5, 6, 8, and 9 are reverse-scored. The scale's total score is computed by summing all item scores. With simple instructions and straightforward administration, the RSES has proven to be a reliable and valid tool, showing an internal consistency of 0.87 (Baldwin & Courneya, 1997).

Body Self-Image Questionnaire – Short Form (BSIQ-SF)

The Body Self-Image Questionnaire - Short Form (BSIQ-SF), developed by Rowe (2005), is a 27-item measure of body image across 9 subscales. Participants respond on a 5-point scale with 'a' (Not at all true of myself), 'b' (Slightly true of myself), 'c' (About halfway true of myself), 'd' (Mostly true of myself), and 'e' (Completely true of myself). These responses are scored on a 1-5-point scale, with a=1 and e=5. Reverse scoring is applied only to item 1. The BSIQ should not be used to derive a summed "total body image" score. Instead, each subscale score is to be treated individually, with scores ranging from a minimum of 3 to a maximum of 15. The 9-factor structure of the BSIQ demonstrated a good fit across different samples, as indicated by the following model fit statistics: $\chi^2(df=576) = 2210.19$, CFI = .93, NNFI = .92, and RMSEA = .04.

Attitude Towards Women Scale (AWS)

The AWS or the Attitude Towards Women Scale is a 25-item scale developed by Spence, Helmrich & Stapp in 1973. It is a shorter version of the original, 55-item Attitude Towards Women Scale. The participant responds to each statement with (A) agree strongly, (B) agree mildly, (C) disagree mildly, or (D) disagree strongly. The responses are scored from 1 to 3, with A= 0, and D = 3. However, items 2, 3, 6, 7, 8, 9, 11, 12, 18, 21, 24, and 25 are reverse-scored. The total scale score is calculated as the sum of all item scores. A high score is indicative of a profeminist, egalitarian attitude, while a low score is indicative of a traditional, conservative attitude. For the 25-item scale, Cronbach's alpha and Spearman Brown reliabilities were .89 and .86, respectively (Daugherty & Dambrot, 1986).

Results

Table 1

Differences between Females Studying in Single Sex vs. Coeducational Institutions in Self Esteem, Attitudes towards Women and Body Image

Variable	Single Sex ($n = 87$)		Coeducational ($n = 62$)		t	p
	M	SD	M	SD		
Self Esteem (RSES)	26.44	4.64	26.05	4.26	0.52	0.60
Attitudes towards Women (AWS)	65.78	7.36	62.74	10.44	2.09	0.04
Body Image (BSIQ)	77.11	13.05	77.06	13.28	0.02	0.98

As shown in Table 1, the t-test results reveal a statistically significant difference in Attitudes towards Women between females studying in single-sex and coeducational institutions ($t = 2.09$, p = 0.04). Females in single-sex educational institutions scored higher on Attitudes towards Women ($M = 65.78$, $SD = 7.36$) as compared to their counterparts in Coeducational institutions ($M = 62.74$, $SD = 10.44$), indicating that the former hold more favourable, egalitarian, and profeminist attitudes. Females in single-sex institutions, therefore, showcase attitudes supportive of increasing equality, expanding human choice, eliminating gender stratification, ending sexual violence, and promoting sexual freedom, while females in coeducational institutions may hold relatively more traditional and conservative beliefs. However, the t-test results indicate no statistically significant difference between females studying in single-sex and coeducational institutions on the constructs of Self-Esteem ($t = 0.52$, $p = 0.60$) as well as Body Image ($t = 0.02$, $p = 0.98$).

Discussion

Self-esteem is defined as a positive or negative attitude toward him/herself; it can also be described as an individual's sense of self-worth (Rosenberg, 1965). The present study's findings did not reveal a statistically significant difference in self-esteem scores between female students in single-sex and co-educational institutions; thus, the hypothesis was rejected. Several studies corroborate the non-significant differences in self-esteem observed in this research. For instance, the differences between women studying in co-educational and single-sex institutions in Pakistan were explored, and it was concluded that while female students in single-sex institutions experienced more stress, their life satisfaction and self-esteem were comparable to those in co-educational settings (Afridi & Maqsood, 2017). Similarly, research investigating self-esteem and locus of control among students from single-sex and co-educational schools found no significant differences, further aligning with our findings (Bonds-Raacke & Nicks, 2001).

High self-esteem scores among secondary school female and male students in Pakistan were also reported in another study, which attributed this to participants' tendency to provide socially desirable responses (Farid & Akhtar, 2013). In a similar context in India, this tendency toward social desirability might explain the lack of significant differences in self-esteem scores in our study.

In their study, Delfabbro et al. (2011) found that negative views of appearance among adolescents were linked to lower self-esteem, reduced life satisfaction, and greater distress, while protective factors such as extraversion, strong social networks, and supportive family environments maintained self-esteem despite poor body image perceptions. These findings suggest that self-esteem is shaped by various factors beyond the school environment, including family dynamics, peer relationships, and personality traits. The implications of these results resonate with our study, highlighting the need to consider external factors when interpreting self-esteem outcomes. Familial support and access to external resources, like social media and extracurricular activities, may influence self-esteem more than the type of college attended.

Significant progress in women's empowerment and gender equality has been made in recent years, particularly in India, as evidenced by increased female education, fewer early marriages, and more women in leadership positions (Somani, 2022), empowering young women and possibly contributing to similar self-esteem levels across educational settings. Both single-sex and co-educational colleges may offer similar resources such as counseling and mentorship, creating supportive environments that foster self-esteem (Sax et. al, 2009).

Lastly, while the RSES is a widely used and validated tool providing a global assessment of self-esteem, it focuses on general self-worth rather than specific dimensions, such as academic, social, or physical self-esteem. Some critics argue that the RSES may not capture desirable self-esteem components and suggest exploring new concepts and non-conscious measurement tools for more comprehensive assessment (Yamasaki, 2019).

The present study revealed a statistically significant difference in Attitudes Toward Women (AWS) between female students enrolled in single-sex and co-educational institutions, with students in single-sex colleges reporting a slightly higher mean score. Attitudes towards women are based on gender role attitudes, i.e., attitudes toward the role of women in society that different people have. The finding of higher AWS scores in single-sex institutions may indicate that these environments offer conditions conducive to fostering progressive gender attitudes, and that the educational context influences perceptions and attitudes towards women, with females in single-sex institutions showing greater positive attitudes compared to those in co-educational institutions.

Prior literature highlights that single-sex educational institutions foster empowerment, agency, and more progressive gender attitudes among female students. By dismantling traditional gender stereotypes, especially in male-dominated fields such as ICT, and

encouraging active participation in subjects like science and mathematics, these environments enhance students' confidence in women's capabilities (Chennabathni & Rejskind, 1998; Miliszewska & Sztendur, 2009). The emotionally and politically safe spaces they offer allow for open expression, mutual support, and the development of egalitarian worldviews (Cumings, 2015). Students in these settings often report higher aspirations, stronger belief in their potential, and greater identification with feminist ideologies (Bijlani & Utereja, 2016; Carroll, 2002). Additionally, increased access to female role models and institutional support further reinforces respect for women's contributions both personally and professionally ((Erarslan & Rankin, 2013; Miller-Bernal, 1993)

However, while the findings of the study indicated a significant difference, the effect size was small ($d = 0.34$), suggesting that while differences exist at a statistical level, their practical significance may be limited. This small magnitude of the difference in AWS scores in our study warrants caution. If single-sex institutions indeed had a broad and robust impact on shaping gender attitudes, this effect might also be expected to manifest in related domains such as self-esteem and body image in the present study. This suggests that while the type of educational institution, single-sex or co-educational, may exert some influence on gender-related attitudes, its impact is neither uniform nor absolute.

Drawing on Bronfenbrenner's Ecological Systems Theory (1979), an individual's development is shaped by multiple interrelated systems. Within this framework, school/college type constitutes only one layer of influence. Factors such as family environment, cultural background, peer dynamics, and media exposure may play a far more substantial role in shaping students' attitudes, beliefs, and self-perceptions (Bronfenbrenner, 1979). The type of academic institution, though relevant, may represent only one of many influencing factors within the broader ecological context. For instance, Delfabbro et al. (2011) and Grabe et al. (2008) highlight how strong family support and media significantly affect self-esteem and body

image - domains in which the present study found no significant difference based on college type.

Personality development studies suggest that while single-sex education may enhance certain supportive characteristics, the broader cultural and educational influences seem to moderate any differences in attitudes toward women (Conway, 1996; Malik, 2013). Moreover, as colleges, regardless of gender composition, become increasingly supportive and hospitable toward women, this shapes liberal and positive attitudes towards women's roles and rights (Hoffnung, 2011).

Additionally, the sample for the present study was recruited from Delhi NCR. In the Indian context, particularly that of female students from Delhi University colleges, research indicates that students are increasingly rejecting traditional and restrictive views about gender roles. Their attitudes toward women are becoming more liberal, and the gender gap in attitudes is narrowing, irrespective of the co-educational or single-sex environment. Overall, in Delhi University and similar Indian educational contexts, the differences in AWS between female students in co-educational and single-sex settings are minimal, likely because both groups are influenced by evolving societal norms that encourage more egalitarian views about gender roles (Sachdev, 1998).

Moreover, a selection effect may be influencing the findings. Students who choose or are encouraged to attend single-sex colleges may already come from progressive, feminist-leaning families or communities. These students may possess more egalitarian attitudes independent of the school context, as noted by Erarslan & Rankin (2013). Thus, the observed differences in attitudes toward women could be reflective of pre-existing beliefs rather than the causal effect of the educational setting.

Overall, the relatively small magnitude of the difference observed in this study highlights the need to move beyond binary comparisons of college types. Rather than viewing single-sex and co-educational environments as monolithic, it is important to examine the specific elements within each setting, such as

curriculum design, teacher-student interactions, peer culture, mentorship structures, and exposure to female role models, that may more directly contribute to shaping gender-related attitudes.

The study's findings did not reveal a statistically significant difference in body image scores (BSIQ) between female students in single-sex and co-educational institutions. These results suggest that body image concerns are not significantly influenced by the type of educational context.

For instance, Spencer et al. (2012) found no significant differences in body concern or physical appearance social comparison based on college type or year of study. Likewise, Hannan et al. (1996) reported that while boys in co-educational settings exhibited lower self-reported body image, no such differences were observed among girls. Further, Willoughby and Carroll (2009) noted no significant differences in body image or related traits, such as impulsivity and extroversion, among students residing in co-educational versus gender-specific housing. Davey et al. (2011) too found no meaningful differences between single-sex and co-educational students in their current and ideal body image ratings.

The relationship between body image dissatisfaction and self-esteem is well-documented. Higher body image dissatisfaction is associated with lower self-esteem (Vasudeva, 2013). The absence of significant differences in RSES among participants across single-sex and co-educational institutions may partially explain the non-significant differences in BSIQ scores observed in this study.

Moreover, societal standards and media portrayals strongly shape body image, affecting both groups equally through social media, advertisements, and cultural norms. Media consumption correlates with body dissatisfaction, particularly among women (Grabe et al., 2008). Higher education environments may play a smaller role in shaping body image as students develop greater awareness of these issues, which could act as a protective factor.

Further, research suggests a relationship between educational attainment and body image dissatisfaction. Body dissatisfaction tends to increase in women with lower education over their life course (Rosenqvist et al., 2024). This implies that a statistically significant difference might emerge if a comparison between groups with varying education levels were conducted. The current study sample comprised women pursuing undergraduate degrees, where no significant differences in body image were observed between single-sex and co-educational institutions.

Limitations

Firstly, the instruments used such as RSES, AWS, and BISQ-SF, were developed in Western contexts, potentially impacting their cultural relevance and applicability to the study's participants. Two of these are older than 10 years, which may compromise their relevance to contemporary contexts. Additionally, relying predominantly on quantitative measures like surveys might limit the depth of insights into participants' opinions towards women and feminism; qualitative methods like interviews could provide a more comprehensive understanding. The study's relatively small sample size, further restricted by being limited to Delhi NCR, may raise concerns about generalizability. Moreover, sensitive topics like self-esteem, body image, and feminist identity carry the risk of eliciting socially desirable responses. The reliance on self-report measures also introduces inherent biases like social desirability bias, memory errors, and inaccurate self-perception.

Future Directions

Though in the present study, attempts have been made to study participants' Self-esteem, Body Image, and Attitude towards Women through quantitative measures such as the survey, the use of mixed methods may provide further insights. This can also mitigate biases and capture diverse cultural perspectives. There is also an urgent need for more pervasive and large-scale studies in the Indian context, and the use of recently developed and culturally relevant scales will be apt for such further research. Employing multidimensional

scales in future research could provide a more nuanced understanding of these potential differences. Additionally, conducting longitudinal studies could offer a deeper understanding of how self-esteem, body image, and attitude towards women evolve over time, and how they relate to individuals' life trajectories. Future research can be aimed at investigating the intersection of educational experiences with religious values and mental health implications, and accordingly, the formulation of policy recommendations for supportive environments needs to be carried out.

Conclusion

The shift from single-sex to co-education has sparked debate on its effectiveness. This study revealed that students from single-sex college had more liberal Attitudes toward Women, though Self-esteem and Body image showed no significant differences. These findings highlight the role of all-girls educational environments in fostering egalitarian gender attitudes, while Self-esteem and Body image may be influenced by individual traits and family dynamics beyond college type. Further research using mixed-method and longitudinal approaches is essential to explore these constructs, considering cultural and regional contexts. Such studies can guide educational policies to support holistic psychosocial development in diverse learning environments.

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Exploring the Impact of Hybrid Work on Organizational Culture and Employee Relationships in the Indian IT Sector: A Qualitative Research

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Abstract: The paper explores the impact of hybrid work on organizational culture and employee relationships within the Indian IT sector. This qualitative research was conducted on a diverse sample of IT professionals, such as technical developers, project managers, and team leads, who have worked in a hybrid model for more than six months. The study utilized semi-structured interviews and focus group discussions to examine how hybrid work has reshaped workplace dynamics, communication patterns, and work-life balance. Thematic analysis was employed to identify key themes and patterns systematically. The findings show that hybrid work increases employee flexibility and commitment to organizational goals while also presenting new obstacles in team-building, social interaction, and leadership responsibilities. Participants noted an increased reliance on virtual communication tools, which, despite their efficiency, often lack the spontaneity and personal connection of in-person interactions. Results also showcased gender differences, with women facing more problems balancing their work life and family life. In conclusion, hybrid work displays both opportunities and challenges for organizational culture and employee engagement. The study emphasizes the need to adopt tailored leadership styles and appropriate communication to support and maintain the well-being of employees in the Indian IT sector.

Keywords: hybrid work, organizational culture, employee relationships, communication and collaboration, Indian IT sector

There has been a widespread use of hybrid models in the technology age, particularly in the IT sector. The COVID-19 pandemic has caused several sectors to adopt the hybrid work model, where employees, including the management and educators, work from home (remotely) and on-site. Battilana and Lee (2014) define hybridity as "the state of being composed through the mixture of disparate parts". Borys and Jemison (1989) first proposed the notion of "hybrid organizational arrangements" with the aim of matching the concept with partnerships, joint ventures, strategic alliances, research and development, and licensing.

A hybrid model is a combination of remote and in-person work or a workforce distributed partly across different locations and located partly in traditional office spaces (Beno, 2021). It is a versatile work model that unites in-office, remote, and on-the-go workers. The use of hybrid work is growing, although some businesses have objected to it, claiming remote employment to be challenging. Businesses have raised issues with tactical problems and productivity that hinder supervisors' ability to observe and coach employees (Robinson, 2022).

In the Indian IT sector, hybrid work has been widely adopted due to the nature of the industry, which allows for remote work. Digital transformation has led organizations to integrate the traditional office space and flexible working hours in order to prevent business failure. Many Indian IT companies, including TCS, Infosys, and Wipro have adopted a hybrid model with employees splitting their time working from home and from the office.

Research shows that hybrid models increase individual productivity, as remote workers tend to be more productive than those working on-site (Beno & Hvorecky, 2021). Organizations offering hybrid work have increased employee retention and a very high

score of positivity and effectiveness in providing the best workspace (Beno, 2021). This can be attributed to the alleviation of commuting-related stress and increased opportunities to spend time with their families. Findings from a study by Rajeswari and Venugopal (2024) indicate a positive association between the hybrid work model and employee productivity, wherein employee engagement plays an essential role.

Schein (1992) defines organizational culture as a foundational set of beliefs shaped by the members of an organization through external adaptation or internal integration. It significantly influences interpersonal interactions and behaviours among employees during day-to-day work. The overall organizational culture metrics improve when employees perceive their leaders as actively working to create a more humane workplace, fostering a sense of being valued and cared for as individuals (Schawbel, 2016). Organizations with hybrid work models focus on boosting employee engagement through factors such as organizational culture, recognition and restructured appraisal systems (Vanitha & Shailashri, 2024). Past research also highlights the importance of effective leadership, the usage of digital tools, and a focus on employee well-being in navigating the unique challenges and opportunities presented by hybrid workplaces. However, hybrid work can lead to a weakened sense of community and collaboration due to inconsistent interaction and reduced relationship quality among employees (Chellam & Divya, 2022). Offline social networks are more effective and lead to higher productivity, better quality, and innovation (Harandi & Abdolvand, 2018). Allen et al. (2015) reported that remote and hybrid workers often experience lower levels of organizational commitment compared to in-office workers. Offline organizations tend to have more cohesive cultures due to maximal social interactions, and for this to be replicated in hybrid organizations, telepresence systems and support from the organization is crucial.

According to Chopra and Sharma (2020), digitalization has improved work-life balance, providing employees with more autonomy over their work schedules and locations. However, the traditional corporate culture maintains that direct communication with employees improves their morale and performance. Hence, certain organizations struggle with creating a unified culture when employees are split between remote and on-site work. The benefits of remote work challenge traditional norms, posing a management struggle to establish the new normal.

While the hybrid model provides employees with better flexibility and work-life balance, there exist drawbacks, such as feelings of isolation, miscommunication, and difficulty maintaining personal and professional boundaries (Rahul & Rajeshwari, 2024). Despite extensive research on remote work, there is a lack of comprehensive research on hybrid work models within the Indian IT sector. Existing research primarily focuses on Western contexts, demonstrating the need for region-specific studies. Hybrid work models can impact organizational culture, including the emergence of new norms and values. However, few studies consider the cultural nuances specific to India.

Although hybrid work has become increasingly common in the Indian IT sector, the lack of culturally informed research hinders organizations from designing policies to foster cohesive and supportive organizational cultures in this context. Productivity and workforce management can be optimized by understanding the relationship between hybrid work arrangements and organizational culture. Additionally, identifying the advantages and disadvantages of the hybrid model can guide future research and inform organizational strategies to improve employee engagement, work satisfaction, and efficiency.

This qualitative study investigates how employee relationships and organizational culture are affected by hybrid work in the Indian IT industry. Through in-depth interviews, the research explores how hybrid work affects organizational culture and employee relationships, including workplace dynamics, teamwork, communication styles, and organizational values.

Research Objectives

1. To examine the shift to hybrid work and its influence on the organizational culture and employee relationships in Indian IT companies, providing information about the factors that contribute to or detract from a positive work experience.

2. To explore the consequences of hybrid work on communication patterns and collaboration among employees.

3. To understand the challenges and opportunities that arise from remote and in-office work dynamics.

Method

Qualitative research concentrates on comprehending the personal experiences, viewpoints, and meanings that individuals assign to their encounters. Since the goal is to investigate the experiences of organizational culture among Indian IT employees, a qualitative approach enables the researchers to explore the intricacies and the context of these experiences. Taking an interpretivist approach, the study explores these experiences from the viewpoint of the participant. It examines the meanings and interpretations that people associate with their experiences. The results highlight the subjective and socially constructed nature of reality (relativist ontology) and how knowledge is created through interaction and interpretation (subjectivist epistemology).

Confidentiality and privacy of the participants were maintained by ensuring anonymity and secure data storage. Informed consent was taken before the interviews. The limitations of generalizability were recognized, and the focus was instead on the richness and depth of the data collected. Additionally, researcher bias was reduced by using reflexivity and research bracketing procedures.

Participants

The study participants included employees from the Indian IT sector, covering a wide range of job roles, including software developers, project managers, team leads, and more. Participants were between the ages of 23 to 55 years and had prior experience working in a traditional work setup for at least 6 months before transitioning to the hybrid model. Recent hires and temporary employees were excluded from the study. The study sample was diverse in terms of gender, age, and job role to ensure a comprehensive understanding of the impact of hybrid work. A combination of purposive and snowball sampling strategies was utilized for participant recruitment. The interview participants included four men and four women, whereas a separate group of three men and three women participated in the focus group discussion.

Data Collection Methods

Data for this qualitative study were collected through eight semi-structured interviews and a separate focus group discussion with six distinct participants. Combining these methods allowed for the triangulation of results, ensuring valid conclusions and a comprehensive understanding of the phenomena.

The questions asked delved into various aspects of the participants' experiences, such as cultural shifts, alterations in communication patterns, team dynamics, work-life balance, challenges, and adaptation. Further, the schedule was validated using peer and expert validation. The validated questions for the semi-structured interviews are presented in Table 1, while those for the focus group discussions are mentioned in Table 2.

Table 1

One-on-one Semi-Structured Interview Questions

Central Questions

1.1 What changes have you observed in the way people work and interact with the shift to hybrid work?

1.2 How do you think the hybrid work model influences the sense of community and belongingness within your organization?

1.3 How has your communication with colleagues and supervisors changed since the transition to hybrid work?

1.4 How have various practices changed due to a hybrid work setup?

1.5 How has the hybrid work model affected your relationships with colleagues?

1.6 How has the hybrid work setup influenced your relationship with your supervisors?

1.7 What effects has hybrid work had on team dynamics and collaboration?

1.8 What effects has hybrid work had on your feeling of belongingness within your company?

1.9 How would you describe your current level of engagement compared to when you worked in a traditional office setting?

Table 2

Focus Group Discussion Questions

Discussion Questions

1.1 How do you think hybrid work environments impact the onboarding and integration of new employees into the team?

1.2 How has the hybrid work model affected work-life balance?

1.3 How has the adoption of new technologies, like AI tools, impacted your day-to-day work in a hybrid setting?

1.4 How has the hybrid work model affected the dynamics between different generations in the workplace?

1.5 How have team dynamics and collaboration changed for you in a hybrid work model?

1.6 What challenges have you faced in establishing and maintaining professional relationships with colleagues in a hybrid work environment?

1.7 Do you feel aligned with your organization's goals and values in a hybrid work setting?

1.8 How does the flexibility offered by hybrid work arrangements affect your job satisfaction?

Data Analysis

Thematic analysis was utilized, which is a simple qualitative technique providing researchers with insight into the common experiences, opinions, and behaviours of research participants. It is mostly used for systematically analysing qualitative data to find themes or patterns within the dataset.

Thematic analysis has given deep insights into how hybrid work affects employee relationships and organizational culture. It offers contextual insights by capturing the particular organizational, social, and cultural characteristics of the Indian IT industry. This study employed inductive thematic analysis as proposed by Braun and Clarke (2006). This method is a systematic approach that allows themes to emerge organically from the data itself. The data is not viewed through the lens of predetermined categories. This inductive technique allowed the maintenance of the participant voice by accurately comprehending the experiences and perceptions of employees. The strength of the analysis was further enhanced by

member checking, peer debriefing, and triangulation.

Results and Discussion

The hybrid model in the Indian IT sector has brought many changes in organizational culture, employee engagement, and the responsibilities of the managers. Key themes identified included communication, collaboration, employee engagement, leadership, organizational culture, productivity, relationships, technology, and work-life balance, as well as considerations of generational and individual differences.

Theme 1: Communication and Collaboration Dynamics

The shift from in-person to virtual communication has significantly altered communication patterns and teamwork, requiring increased efforts to maintain effective team dynamics. Virtual communication tools such as Microsoft Teams and Zoom have been able to allow people to work remotely, but have failed to substitute the spontaneous, informal interactions characteristic of office settings.

Theme 2: Employee Engagement and Belongingness

A sense of belongingness directly impacts how employees are motivated to contribute meaningfully and their commitment to the organization. Many participants recounted a decreased sense of belongingness and emotional connection with colleagues in the absence of an office set-up. However, those who found this work arrangement convenient stated a greater sense of belonging as well as engagement.

Theme 3: Organizational Culture and Transformation

Hybrid work requires many individuals to have a greater sense of independence and increased organizational commitment. Participants in the study reported that core values have remained stable, however, challenges in maintaining a strong organizational culture were quite evident. Many employees also expressed difficulties that new

employees faced in integrating with companies whose culture did not translate over the hybrid set-up.

Theme 4: Professional Relationships and Social Dynamics

Participants reported that the hybrid model affected team dynamics and employee relationships through productivity and collaboration. While some employees thrived in remote settings, others mentioned missing out on teamwork and collaboration when not interacting face-to-face with their colleagues. Regardless, all members admitted a sense of loneliness and isolation from their colleagues.

Additionally, the participants stated that their managers started employing micromanagement techniques to increase productivity and accountability. This put a strain on their professional relationships and led to distrust among the employees.

Theme 5: Productivity, Decision-Making, and Performance

Participants who enjoyed hybrid work believed their productivity improved, however, all agreed there were changes in problem-solving and decision-making. They reported fewer informal, spontaneous brainstorming sessions and more reliance on scheduled virtual meetings, which reduced creativity and innovation. While they shared their organization's efforts at casual conversations during virtual meetings, they could not recreate the natural, free-flowing conversations taking place in person. A lack of physical presence in virtual meetings was seen as resulting in reduced trust and rapport across the team – two fundamental components that are required for building strong, effective, high-performing teams.

Theme 6: Leadership, Supervision, and Change Management

As mentioned above, participants also noted that in a hybrid workplace setting, managers checked on employees more frequently to ensure productivity. This constant monitoring was often seen as mistrust, which adversely affected employee morale and diminished their sense of independence.

Theme 7: Technological Integration and Operational Efficiency

Technology was perceived to improve communication and workflow management, but it also created some challenges. The boon of the digital era has caused organizations to adopt virtual communication tools. Although these tools have facilitated opportunities for cross-collaboration, participants felt that those tools lacked the personal touch of engagement necessary for strong interpersonal relationships.

Figure 1

Emergent Codes and Themes from Thematic Analysis
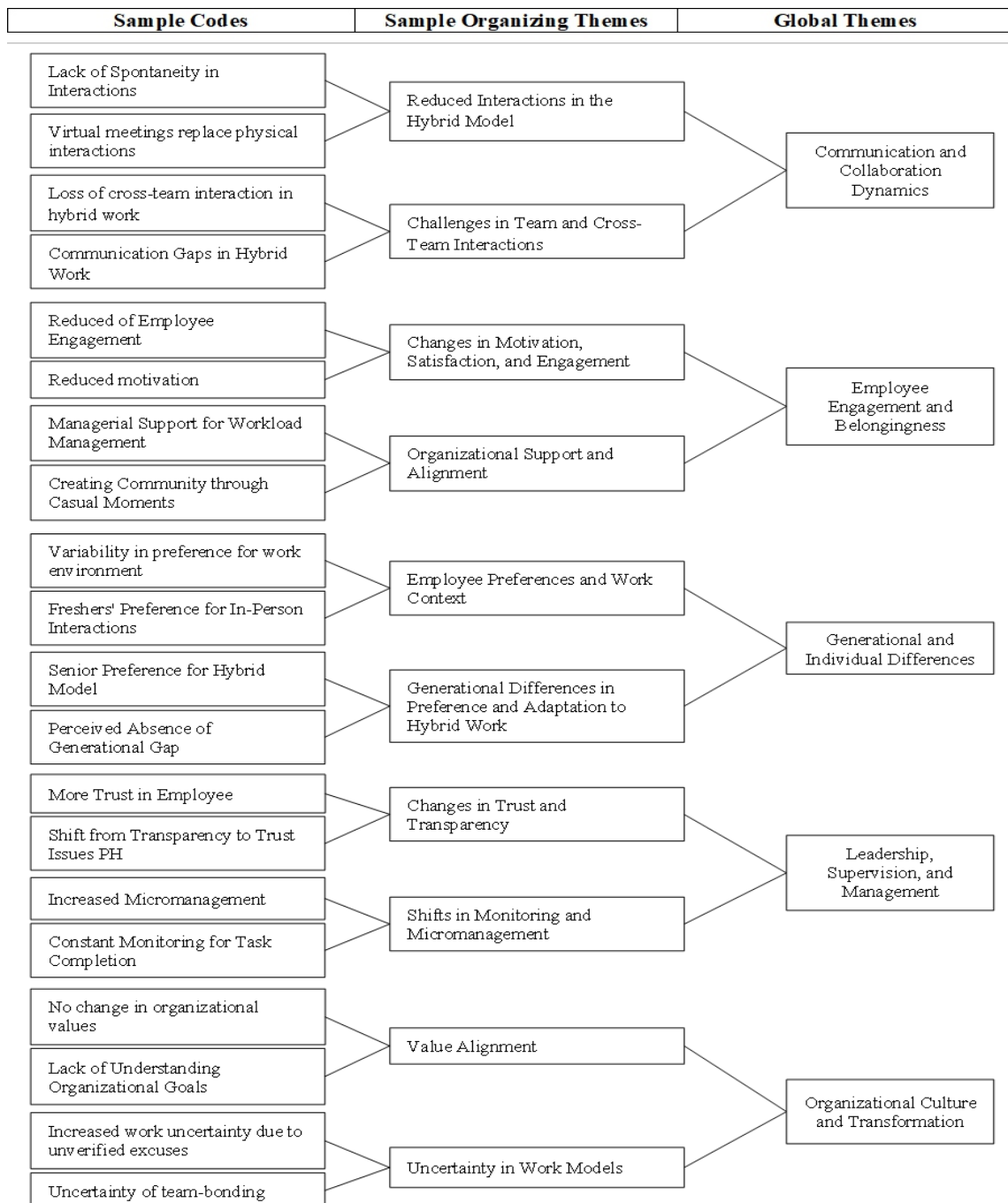
Emergent Codes and Themes from Thematic Analysis (continued)

Sample Codes	Sample Organizing Themes	Global Themes
Feelings of Isolation in Hybrid mode	Importance of In-Person Interaction	Professional Relationships and Social Dynamics
Bonding In-Person		
Lack of Bonding Opportunities	Limited Opportunities for Relationship-Building	
Difficulty in Expanding Professional Network		
Hybrid Work Enhances Productivity	Enhanced Productivity through Technology and Autonomy	Technological Integration and Operational Efficiency
Increased Autonomy in the Hybrid Work Model		
Increased Technological Learning Opportunities	Learning and Development in the Hybrid Model	
Value of Self-Learning vs. AI Support		
Elimination of Travel Hassles	Convenience and Benefits of Hybrid Work	Work-Life Balance and Flexibility
Convenience of Hybrid Work for New Employees		
Gender Differences in Work-Life Integration	Work-life Integration	
Lack of Work-Life Balance		

Theme 8: Generational and Individual Differences

The interviews highlighted how experiences with hybrid work vary by age, gender, and personal preferences, impacting adaptability and work satisfaction. The interviews highlight how generational differences influence preferences for hybrid work, with the senior employees preferring hybrid more. Another theme highlights gender disparity in the experience of hybrid work, particularly regarding work-life balance. Women had a difficult time balancing household chores and professional work, as there was no clear boundary separating the two anymore.

Theme 9: Work-Life Balance and Flexibility

Participants reported that hybrid work arrangements are more flexible than traditional models as it helps them find a better balancing point between personal and professional life. On the other hand, several female respondents perceived challenges that made the tasks of balancing family or household work with work demands difficult. Such blurred lines within the work-life boundary increase the burden on women. Therefore, organizations must address the gender-specific challenges of hybrid environments and support employees in this regard to manage household responsibilities.

This study reveals that hybrid work offers advantages such as flexibility and improved work-life balance, but also poses challenges in fostering team collaboration and addressing gender disparities.

The Indian IT sector has witnessed a significant shift towards hybrid work arrangements in recent years, mainly driven by the pandemic and advances in

technology. This change has had a major impact on employee relationships, whether formal or informal, as reported by the participants. The thematic analysis conducted revealed themes pertaining to this aspect including "Professional Relationships", "Social Dynamics", "Employee Engagement" and "Belongingness".

While the hybrid model provides employees with better flexibility and autonomy regarding their work schedules, it has reduced social or casual interactions thereby impacting professional relationships (Becker et al., 2022). One participant noted, *"We try to have casual discussions in virtual meetings, but it's just not the same. The creative energy of bouncing ideas in-person is missing."* The shift to teleworking has impacted interpersonal relationships among employees, with reduced direct interactions to discuss their personal concerns and fewer opportunities for appraisals (Chellam & Divya, 2022). An interviewee stated, *"You have team lunches when you're going to the office. This doesn't happen here."*

While companies have attempted to bridge the gap in social interactions through team-bonding initiatives such as CSR activities and Fun Fridays, the structured informal interactions amongst employees pose limited opportunities for relationship-building. Although these activities were appreciated, most participants felt that it did not have the same impact as regular physical gatherings. The lack of face-to-face conversations in the hybrid setup has resulted in poor employee relationships, especially with new team members, affecting team connectivity. Research evidence displays that difficulties in developing relationships with colleagues significantly impact employee engagement and satisfaction in remote work (Kock & Lynn, 2012; Kang & Sung, 2017). Informal or spontaneous office interactions foster camaraderie and personal trust, and the reduced frequency of such interactions hinders opportunities for team bonding and building trust. One of the participants also mentioned *"A lack of casual or face-to-face interaction makes it even harder for me to communicate with my team leader"*. Additionally, challenges in the onboarding of new employees due to a lack of proper in-person guidance can make it difficult for freshers to integrate effectively into teams and

understand the workplace culture.

Hybrid work has also brought about a vast change in the communication and collaboration dynamics in the workplace. According to Kahlow et al. (2020), hybrid work environments can limit organic collaboration, as they fail to replicate the spontaneous interactions that occur in the office. Participants have reported an increase in formal, structured conversations with employees focusing more on task outcomes and deliverables. The adoption of a hybrid model also led to increased reliance on technological tools like Microsoft Teams, Zoom meetings, and WhatsApp for communication. However, this dependence on virtual platforms often lacks the personal touch necessary for meaningful relationship-building, resulting in a sense of disconnect (Morrison-Smith & Ruiz, 2020). Virtual meetings have helped facilitate cross-collaboration with different departments. However, certain limitations in digital collaboration can constrain team and cross-team relationships. Such constraints include the inability to access cross-boundary information outside the usual working boundaries (Yang et al., 2022). While participants commend the efficiency of such tools for work-related discussions, especially with clients abroad, they have also noted a decrease in team collaboration, citing complexity in coordination due to different work locations and accommodating meetings in different time zones for clients. This lack of cohesion and direction in hybrid settings, especially in larger teams, can reduce efficiency in teamwork and lead to an increased sense of disconnectedness.

One of the participants commented, *"We used to have a team brainstorming session in-person every Wednesday, but this has changed a lot,"* pointing towards the absence of dynamic physical interactions on innovation and creativity. This absence directly impacts social interaction and professional relationships, which are essential for innovation (Klarner et al., 2019). A common viewpoint is the limitations of telecommunication in aiding new employees to build rapport with their colleagues. Multiple participants have highlighted how virtual meetings tend to be less engaging, making it difficult to maintain concentration,

which can thereby lead to low work productivity. As a result, companies are trying to incorporate casual calls. For example, one participant said, *"We have also been instructed, you know, even within the Zoom call, to try to have something like a water cooler moment. Talk about things like what are your hobbies? How do you manage your day? Things like that."*

A participant mentioned, *"Nowadays with gadgets, misunderstandings can easily happen through written messages because you don't know what they are saying".* Although virtual meetings enable organization and flexibility, the absence of non-verbal cues and nuances in body language do not fully replicate the depth of in-person interactions, causing potential miscommunications. This exacerbates ambiguity in the work setup, which can affect decision-making processes. Online means of communication, such as email and e-messaging, lack the qualities to convey intended messages and complex topics of work discussion (Yang et al., 2022).

The shift to hybrid work has significantly changed the organizational culture and structure within the Indian IT sector. These changes have reshaped how employees perceive their role within the organization. While participants noted that company's core values did not change with the shift, there is a visible improvement in organizational commitment. Research by Sri and Vasantha (2024) supports this, showing that there was better organizational commitment among hybrid employees of IT companies. While companies fail to foster strong cultures virtually, participants mentioned the increased flexibility of this work setup, as supported by Naqshbandi et al. (2023). This commitment is so strong that there is an increasing preference for hybrid and remote jobs. One participant mentioned, *"Hybrid work allows me to better structure my day without the exhaustion of commuting."*

From a leadership perspective, hybrid work has increased managerial challenges. Results show that micromanagement and monitoring have become more prevalent as managers attempt to ensure productivity in this decentralized work setting. This shift towards micromanagement can negatively affect employee

motivation and satisfaction, as it diminishes their sense of autonomy (Ndidi et al., 2022). Mabaso and Manuel (2024) highlight how managers in hybrid models face challenges in maintaining employee accountability while balancing autonomy and trust. Thus, striking a balance between the two by avoiding micromanagement and fostering adaptability is crucial in maintaining trust and motivation in a hybrid setup (Caise & Tucker, 2024).

While employees benefit from reduced commuting time and companies save on office expenses, they also report experiencing drawbacks such as feelings of isolation and disconnection from their teams. As reflected in one response, *"I miss the casual coffee break chats—now, every conversation feels scheduled and formal."* This finding aligns with existing literature, which suggests that hybrid work can impede spontaneous and informal interactions critical for relationship-building and collaboration (Bredberg et al., 2023).

Hybrid work has provided greater flexibility for employees, giving them the autonomy to integrate their professional and personal lives more effectively, leading to enhanced job satisfaction (Gorjifard & Crawford, 2021). Participants highlighted that remote work facilitates better management of personal commitments, contributing to overall well-being. However, gender differences emerged in this context, with women facing challenges in achieving work-life balance as the boundaries between work and home responsibilities blurred. One interviewee noted, *"especially women [struggle], when they work from home with family, it's work for home and from home."* The study has also found generational differences in adaptation to and performance in hybrid work. Younger employees seem to prefer in-person work because it provides them better opportunities for interaction and gaining richer work experiences whereas senior employees often prefer hybrid work for greater flexibility and work-life balance.

In conclusion, the transition to hybrid work in the Indian IT sector presents both challenges and opportunities for organizations. While some employees experienced increased efficiency and

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motivation to work, others reported blurred boundaries between their work and personal life, eventually leading to burnout. Thus, organizations need to ensure work-life balance and promote employee well-being by structuring work and managing the workload effectively. By prioritizing effective communication, adaptive leadership, and employee engagement, companies can successfully navigate this shift and cultivate a resilient organizational culture that supports employee relationships.

Limitations

The study findings are specific to the Indian IT sector and may not be applicable to other industries or regions. Excluding recent hires and temporary employees may have overlooked unique perspectives, particularly from those at early career stages or with distinct hybrid work experiences. While efforts such as reflexivity and bracketing were employed to reduce researcher bias, qualitative analysis inherently involves interpretation, introducing a degree of subjectivity. The study also reflects a specific temporal context; thus, the relevance of these findings may diminish over time as hybrid work evolves.

The reliance on self-reported data means the insights are shaped by participants' perceptions and memories, which are prone to biases. Moreover, the participants' emphasis on challenges might have unintentionally skewed the balance of the findings. The research primarily focused on employee perspectives, providing limited insights into organizational strategies or leadership approaches that could mitigate hybrid work challenges. Additionally, while virtual communication tools were explored, other technologies that might enhance hybrid work were not deeply analysed. These limitations open opportunities for future research by prompting the examination of the evolving nature of hybrid work across industries and regions.

Implications

The findings of this study have several important implications for organizations, leaders, and future researchers navigating the hybrid work model in the Indian IT sector.

Firstly, the study highlights the challenges that arise with the maintenance of a cohesive organizational culture in a hybrid work setting. The reduction in spontaneous and informal interactions has negatively impacted employees' sense of belongingness, creativity, and interpersonal relationships. It has also made it difficult for new employees to integrate themselves into the organization. Though organizations have attempted to recreate elements of in-person socialization with informal chats and recreational events, the outcomes of such efforts are unsatisfactory. Thus, these findings call for innovative ways to foster social connections virtually.

Secondly, hybrid work altered managerial roles with a shift from direct supervision to remote management. This shift has led to increased micromanagement, a form of management that leads to distrust amongst employees. These insights highlight the need for trust-based management styles to improve productivity.

This study also reveals that employees struggle with communication. While virtual communication tools are effective for completion of tasks, there is a lot of miscommunication because there is a lack of non-verbal cues. Creativity is also hindered due to a lack of spontaneity during structured and scheduled meetings. Thus, organizations must develop programs that foster communication skills to promote more dynamic interactions with less room for ambiguity and misunderstandings.

Finally, a notable finding was the gendered experience of hybrid work. Female employees reported increased difficulty in managing their work-life balance. Due to the lack of a clear boundary in hybrid work settings, they had to juggle household responsibilities alongside professional demands. Organizations must consider gender roles and promote flexible scheduling and caregiving support policies to ensure equitable experiences for all employees.

The findings suggest that hybrid work is not a one-

size-fits-all model and requires a nuanced, context-sensitive approach. As hybrid work becomes more common, continuous feedback mechanisms and data-driven evaluations are essential to refine practices.

Conclusion

The study explores the impact of hybrid work on organizational culture and employee relationships in the Indian IT sector. Using qualitative analysis, the study has examined the ways in which hybrid work impacts communication patterns, collaboration, employee engagement, job satisfaction, and overall workplace dynamics. The findings suggest that hybrid work provides both opportunities and challenges, strongly influencing changes in the operation of organizations and work experience for employees.

Hybrid work has provided greater flexibility for employees, giving them the autonomy to manage and balance their professional and personal lives. Participants have reported that hybrid work facilitates work-life balance and reduces travel hassles. However, the model also provides challenges in building organic work culture and relationships, which would occur in a traditional office setting. The study has found generational differences in adaptation to and performance in hybrid work. Organizational culture has been impacted greatly, with changes in employee engagement and motivation. Leaders face limitations in managing employees, highlighting the need to balance between autonomy and appropriate monitoring without resorting to micromanagement. Challenges related to productivity are also present leading to an increased requirement for performance evaluation because of deficits in work integration and productivity.

Hybrid work has significantly changed communication patterns as employees have increasingly become dependent on virtual platforms. Although technology facilitates collaboration, it has also introduced new challenges in the process. There remains miscommunication, uncertainty, and lack of coordination which causes significant impairment. Hence, it is essential to adopt strategies that enhance communication and collaboration in the hybrid work model in order to mitigate these issues.

In conclusion, hybrid work has resulted in a cultural shift that requires Indian IT companies to restructure and reintegrate their work practices to ensure that this model performs well. Organizations have to balance flexibility with structure and focus on effectively integrating technology and communication tools. Leaders need to play an active role to foster engagement, collaboration, and trust to ensure job satisfaction and professional development. Future research can explore how organizational culture evolves in the Indian IT sector by addressing the challenges of hybrid work, with a focus on understanding the strength of employee relationships.

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