

South Asian Journal of Participative Development

C O N T E N T S

Vol. 25: No. 3

July –Dec: 2025

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It is with a deep sense of academic satisfaction and institutional commitment that I present the Regular Issue (July–December 2025) of the *South Asian Journal of Participative Development*. This issue follows the successful organisation of the National Conference on “Research and Development in the Era of Artificial Intelligence to Strengthen Research for Viksit Bharat @ 2047,” an event that brought together scholars, practitioners, and researchers from across the country. The enthusiastic response to the call for papers reaffirmed the vibrancy of contemporary social science research in India and the seriousness with which academics are engaging with the new challenges and opportunities emerging in the era of Artificial Intelligence. While fifteen papers that directly addressed the central theme of AI and research innovation were published in the Silver Jubilee Special Issue, the remaining eighteen research articles—each carrying substantial scholarly merit and an NGO Profile—are included in this Regular Issue, thereby allowing us to maintain the thematic coherence of the Special Issue while ensuring that all quality contributions receive due recognition.

The papers featured here highlight the wide intellectual spectrum that social science research today encompasses. They examine issues of social work practice, mental health, sustainability, gender dynamics, disability, rural development, digital literacy, community resilience, organisational functioning, and participatory processes. The methodological variety displayed in these studies—from qualitative field explorations to quantitative assessments, from mixed-method designs to analytical reviews—reflects the growing maturity of social science research and the seriousness with which emerging scholars are approaching their areas of inquiry. The articles also illustrate that academic research continues to respond meaningfully to lived realities: the psychosocial concerns of vulnerable populations, the pressures faced by adolescents and youth, the challenges of tribal and rural livelihoods, the complexities of NGO governance, and the emerging risks and opportunities posed by digitalisation.

Together, these contributions reveal an important truth: that even as the research world becomes increasingly influenced by Artificial Intelligence, the essence of scholarship remains rooted in critical thought, ethical reflection, and contextual understanding. AI may offer support in reviewing literature, analysing data, or improving accessibility, but it cannot substitute for intellectual depth, field engagement, or experiential interpretations of social phenomena. This issue stands as a reminder that serious academic work continues to draw its strength from evidence-based inquiry, lived experience, and conceptual clarity. At the same time, the challenges associated with AI—such as the temptation to rely on automated writing, the risks of superficiality, and concerns around academic integrity—require ongoing attention. Our journal has always upheld the principles of originality and ethical research, and as we move deeper into the age of technological transformation, these values become more important than ever.

As Editor-in-Chief, I take this opportunity to express my sincere appreciation to the Guest Editors, Prof. Gangadhar B. Sonar and Prof. Sandeep B. Jagdale, for their scholarly involvement, meticulous editorial work, and valuable contributions in curating the Silver

Jubilee Special Issue and in supporting the screening of papers received for the conference. Their engagement has significantly strengthened the academic quality of both issues. I extend my heartfelt gratitude to all contributors whose research enriches this publication and expands the discourse on participative development. My thanks also go to the peer reviewers for their rigorous evaluations and constructive feedback, which help maintain the scholarly integrity of the journal. I acknowledge with gratitude the efforts of the organising committee of the National Conference, whose dedicated work provided the platform for generating this rich body of research. I likewise appreciate the continued guidance of our national and international Editorial Board members who, through their expertise and commitment, uphold the credibility and vision of this journal as it completes twenty-five years of service to the academic community.

As we advance further into the Silver Jubilee year, the journal reiterates its commitment to promote multidimensional, rigorous, and socially relevant research. We remain devoted to nurturing ethical scholarship, supporting young researchers, maintaining high editorial standards, and offering a credible platform that encourages academic discourse on development, social justice, and human well-being. I am confident that the present issue will contribute meaningfully to ongoing research efforts and stimulate deeper academic reflections. I warmly invite feedback from our readers, contributors, and well-wishers, whose insights help us refine our vision and strengthen our contributions to the field.

Dr. B. T. Lawani
Editor-in-Chief

This issue is select contributions of various academicians and research scholars from vivid disciplines containing scholarly articles both thematic and empirical in response to call of the National Conference on “Research and Development in the Era of Artificial Intelligence: Strengthening Research for Viksit Bharat @ 2047” on the eve of Celebration of the Silver Jubilee Year of South Asian Journal of Participative Development. It has the articles based on intervention research and thematic reviews. Further significant papers are pertaining to them of the conference.

At the outset, Vasudha Harshavardhan Shroff and Gangadhar B Sonar examined the effectiveness of resilience enhancement interventions with women employees working in a food manufacturing industry. Swaytha kamalee R B and B. Dhana Lakshmi studied the role of Artificial intelligence (AI) in strengthening the Sharing economy and aligning it with the Sustainable Development Goals (SDGs). Venkatesh C M and Chidanand Dhavaleshwar emphasize how social workers, through community mobilization, awareness campaigns, and facilitating access to welfare schemes, can serve as critical enablers of climate resilience. Bindhu S T and Susmitha B presented a secondary review assessing existing literature on women’s knowledge, awareness, and health-seeking behaviours related to menopause and post-menopause. S Tejashree and V Krishna Kumari reflect a modern evolution of nostalgic emotion, grounded in classical nostalgia psychology, affective attachment theory, and the Technology Acceptance (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) frameworks.

S. Saikerthana and V Krishna Kumari examine consumers' knowledge of eco-friendly products and the critical role influencers play in swaying consumers' decisions to buy. P. R. Kengnal examines the demographic factors influencing social networking site (SNS) usage among degree college students in Bagalkot District, Karnataka. Prashant Vikas Karale studied Gendered Livelihoods and Indigenous Knowledge and pathways to Climate Resilience in Melghat’s Korku Communities. Praveen G. Madival and Chidanand Dhavaleshwar studied the influence of social media on Adolescents' Mental Health with Social Work Perspective. Mithilesh Kumar examines the challenges faced by human beings and focuses on Mahatma Gandhi's responses to them during his time. Vishwanath Sidhappa Hadpad and Sandeep B Jagdale synthesize scholarly literature, policy documents, and empirical case studies to critically examine the role of FPCs in the empowerment of tribal communities.

Ketaki Pujari, Neha Gupta and Rajita Dixit explore the significance of digital literacy among women entrepreneurs in rural Maharashtra, where access to technology and financial services remains a challenge. Bharati Chavan and Chandrakanti Nayak review the need for standardized training, supportive supervision, digital referral mechanisms, which will focus on the integral and multi-sectoral approach in building community-level capacity. Samiksha Neroorkar, Aishwarya Yadav and Mohini Wagle document the development of a comprehensive operational checklist designed to support NGOs in evaluating and strengthening respective institutional systems. Renuka E. Asagi and Shilpa Panday examines parental awareness of disability rights, teacher preparedness, school accessibility, availability of rehabilitative services, and systemic and attitudinal barriers.

Gopal Chandra Mahakud, Akanksha Soni and Bhavesh Padiyar investigate the impact of empty nest syndrome on mental health and sleep quality among Indian parents, with a particular focus on gender differences. Archana Laxmanrao Bansode and Meghraj A. Kapurderiya evaluate the role of RSETIs in skill development, entrepreneurial mindset formation, and employment creation among rural women, assess post-training economic engagement including business establishment, wage employment, and self-help group (SHG) linkages and determine challenges, sustainability factors, and policy implications for Viksit Bharat @2047. Parashurama K. G. and Rashmi C.R. stressed the need to strengthening practice competencies among social work students and tried to connect theory and practice in Social Work Education. At last, we have NGO profile, where readers will get important information about Cause to Connect Organization working to empower youth with skill trainings. We will be happy to receive comments and suggestions for future improvements.

Prof. Gangadhar B. Sonar

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Guest Editors

Social Work Interventions on Enhancing Employee Resilience: A study in Food Industry of Bengaluru

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Abstract

The food manufacturing industry being a major contributor to India's economic growth, often faces high rates of employee turnover, job-related stress, and low morale among line workers. India's commitment towards SDGs particularly SDG 3 (Good Health), SDG 8 (Decent Work and Economic Growth) have drawn attention towards occupational health. Workplace resilience being an acquired trait can be enhanced through intervention which will help employees better equip with tools that will increase their adaptability and improve their work performance. The objectives of this study were to examine the development and implementation of resilience training module among women employees and to present preliminary findings of changes in resilience levels of the employees. The study adopted a pre-post-test quasi experimental research design. Selected women employees underwent a structured intervention for 15 days which included modules on resilience, self-awareness, emotional intelligence and mindfulness. Resilience was measured before and after intervention by administering Resilience at Work Scale developed by Peter Winwood (2013). Descriptive and inferential statistics were applied to assess the impact of interventions. The findings of the study indicate that the intervention had a significant positive effect on the employees.

Key Words: Social Work Interventions, Women Employee, Resilience, Food Industry.

Introduction

The contemporary world of job market is characterized by rapid technological change, globalization, economic volatility, and shifting employee expectations. Events such as the COVID-19 pandemic, digital transformation, and market disruptions have intensified organizational pressures, demanding agility and adaptability at every level (Lund et al., n.d.). These disruptions have revealed that success in modern workplaces is not solely dependent on technical or structural capabilities but also on the psychological and emotional endurance of the workforce. Within this context, resilience has emerged as a multidimensional construct encompassing emotional regulation, cognitive flexibility, and social connectedness. It reflects an individual's and organization's ability to withstand stress, recover from setbacks, and grow through adversity (Luthans, 2002).

Among various industrial sectors, the food manufacturing industry occupies a distinctive position due to its critical contribution to national development, employment generation, and food security. Food processing sector with 12.4 percent of employment acts as one the largest employment provider in the organised manufacturing sector in 2022-2023 (Press Release: Press Information Bureau, n.d.). India being the world's most populous nation, is expected to sustain a predominantly young population through 2030. This demographic advantage, combined with rapid urbanization and evolving lifestyles, is significantly transforming food consumption patterns (India's Food Processing Industry: Growth & Opportunities | IBEF, n.d.). As incomes rise and exposure to global cultures increases, dietary preferences are shifting from traditional staples toward more diverse, convenient, and health-conscious options driving growth and innovation across the food manufacturing and service sectors.

Globally, the food processing sector is one of the largest employers, particularly in developing economies like India (FAO, 2021). According to the Federation of Indian Chambers of Commerce and Industry (FICCI, 2023), the Indian food processing industry accounts for nearly 32 percent of the country's total food market and employs a substantial portion of its rural and semi-urban workforce. The sector's economic relevance is matched by its human dimension, labor-intensive processes, strict timelines, and quality compliance requirements which demand both physical and psychological endurance. However, despite its economic significance, the human well-being component within this sector has often remained underexplored.

Work in the food manufacturing sector is characterized by repetitive tasks, production pressure, limited autonomy, and physical fatigue. Many workers, particularly women, experience high levels of occupational stress, musculoskeletal strain, and psychological exhaustion (Bijetri, n.d.; and Alvi, n.d.). The nature of the work, routine, time-bound, and often under rigorous supervision can reduce opportunities for intrinsic motivation or skill diversification. Moreover, shifts in consumer demand, seasonal fluctuations, and automation have created additional uncertainty and job insecurity. These contextual stressors necessitate psychosocial interventions that enhance adaptability and emotional well-being. Organizational interventions that target psychosocial risk factors can lower emotional distress and enhance key work outcomes, including job satisfaction, reduced absenteeism, and improved performance (ILO, 2020).

Organizations are increasingly turning to the concept of resilience as a strategy for navigating turbulence and maintaining viability in complex and uncertain work environments. Studies across disciplines viz., psychology, management, and human resource development have shown that resilience enhances wellbeing, creativity, and sustained performance under pressure (Robertson et al., 2015). Enhanced resilience equips organizations with the capacity not only to endure crises but also to recover more effectively and rebuild stronger than before. By fostering resilient systems, teams, and leadership, organizations can adapt to changing circumstances, minimize disruptions, and transform challenges into opportunities for growth and innovation (Borms et al., 2023).

Across the globe, women form the backbone of several manufacturing subsectors, including textiles, garments, and food processing. Yet, the intersection of gender, work, and resilience has often been overlooked in organizational research. Women's participation in industrial employment, especially in low and middle-income economies presents a complex interplay between empowerment and vulnerability (UN Women, 2023). Many female employees juggle domestic responsibilities with occupational demands, leading to cumulative stress and fatigue.

In manufacturing environments, women often experience heightened psycho-social risk factors, including limited control over work pace, high monotony, and higher expectations from supervisors. These factors can diminish well-being, increase turnover intentions, and restrict skill development. However, interventions designed to enhance resilience can help women reinterpret these challenges as opportunities for personal growth. Resilience-building not only enhances emotional regulation but also increases self-efficacy and goal orientation, thereby improving both job performance and satisfaction (Cooper et al., 2014; and Good et al., 2023).

In the context of the food manufacturing industry, women's resilience carries special significance. Many occupy repetitive or quality-control-related roles requiring precision, endurance, and continuous focus. Psychological strain from such repetitive work is compounded by social expectations at home. Resilience-based interventions can provide coping strategies, mindfulness techniques, and reframing exercises that support mental well-being. Moreover, collective resilience is strengthened through supportive peer relationships and can transform workplace culture, creating communities of trust and collaboration (King et al., 2023). By empowering women with psychological tools to manage adversity, organizations foster not only individual well-being but also social sustainability and gender inclusiveness at work. This relates to promoting gender development and optimum utilization of human resources, which is essential for overall social development.

Furthermore, resilience in the food manufacturing context aligns closely with the United Nations Sustainable Development Goals (SDGs). Specifically, it supports SDG 3 (*Good Health and Well-being*), SDG 5 (*Gender Equality*), and SDG 8 (*Decent Work and Economic Growth*). Interventions that enhance employee resilience contribute directly to these goals by fostering mental health, promoting gender equity in industrial participation, and creating sustainable, supportive work environments. The development of psychological resilience, therefore, represents a practical step toward achieving sustainable human development in labour-intensive sectors like food manufacturing industry. The vision for Viksit Bharat 2047 seeks to leverage India's food processing sector to expand income opportunities for rural communities, generate employment, reduce food wastage, and increase the availability of nutritious foods through improved processing and value addition (Lp, n.d).

Social Work Interventions to Enhance Employee Resilience: A Review

The review of literature is a process of assessing the existing literature to have conceptualization of the key terms of research, identify studies undertaken in a domain of research and the variables explored. The goal of reviewing literature is to identify

research lacunas so that objectives are framed accordingly to establish significance of the present study. The previous studies found on the topic of research are organised into following relevant themes.

1. Resilience and Stress

Resilience acts as a key factor in enabling employees to deal with work-related stress which in turn will help in minimizing overall burnout. Intervention on individual, organizational and educational level can be implemented to strengthen resilience (Stanley et al., n.d.). Resilience has a significant inverse relationship with burnout. Even highly resilient employees may feel worn out by the stressors of change, just like others. However, they are able to bounce back to normalcy quickly and maintain their equilibrium (Santhosh & James, n.d.). Resilience significantly mediates the relationship between work pressure and employee happiness. When employees handle challenges in a better way and bounce back, they are likely to feel content in their job (Sharma, n.d.). Resilience-building programs that emphasize developing adaptive behaviours and strong social connections can improve an individual's capacity to handle stress, resulting in greater overall well-being (Kaur, 2023). On the contrary to the stress of work-life balance, perceived family support has positive correlation with work resilience of individuals (Bose & Pal, 2020).

2. Workplace Resilience and Intervention

Gender specific interventions has helped in increasing resilience among working women (Karpagavalli, 2019). Leaders can intervene on enhancing resilience of employees by demonstrating positive behaviours and by promoting a culture that values well-being, self-care and flexible thinking (McEwen, 2022). As resilience is an acquired trait, its development results from the combined influence of personal, social, and professional factors that work together in synergy (Biswas et al., 2025).

3. Resilience and Performance

A resilient employee tends to show greater work engagement than less resilient employee (Aggarwal, n.d.). Resilience plays a pivotal role in deciding association between work engagement and job satisfaction. Organizations can adopt work-life balance initiatives and inculcate training to enhance resilience for building sustainable resilience among employees (Ibrahim & Hussein, 2024). Resilience provides employees with psychological energy which acts as a personal resource that employees use through their creative energy while facing adversities or stressful events that will further help in fostering organizational growth (De Clercq & Pereira, 2019). Specifically tailored interventions aimed at strengthening workplace resilience can result in effective management of job complexity in long run and also help in empowerment of employees. Fostering resilience can improve job satisfaction in Indian organized sector (Nanda, n.d.). Employee job performance is positively impacted by resilience and work engagement. Organizations can adopt strategic human resource management practices to cultivate, sustain, and support a resilient workforce (Lu et al., 2023). Employees being irreplaceable capital of the organization, through performance management and training, organizational agility can be developed leading to resilient organizations (Okuwa & Nwuche, 2016).

4. Resilience and Leadership

Leaders of an organization can facilitate resilience among employees by managing change and motivating employees. Resilient leadership behaviours play a vital role in strengthening employees' cognitive resilience. Through clear communication, guidance, and consistent mentoring, leaders can foster employees' ability to adapt, recover from challenges, and maintain effectiveness under pressure (Prayag et al., 2024). Resilient behaviour of the leaders has a moderating effect on employee resilience which further has positive result on organizational resilience (Liang & Cao, 2021). Leadership can influence resilience among employees both directly and indirectly; leadership styles such as empowering leadership play an instrumental role in cultivating resilience. Employee resilience does not solely depend on personal traits but also how well leaders manage their employees (Nguyen et al., n.d.).

In view of research lacunas identified over review of literature following objectives have been formulated to address research gaps:

1. To develop and implement training interventions for enhancing resilience among women employees in Shri Raja Industries (1To3 Foods), Bengaluru
2. To assess the resilience scores of women employees with regard to pre and post intervention and examine the impact of interventions.

Methodology

In order to achieve the objectives, the present study employed a pre-post-test quasi-experimental research design to examine the effectiveness of a resilience enhancement interventions among women employees. A study was conducted at Shri Raja Industries (1to3 Foods) Bengaluru, where 45 women employees were selected through systematic random sampling and divided into two batches to enable smaller-group learning and active participation. Resilience was assessed using the Resilience at Work (RAW) Scale developed by Peter Winwood and others (2013) a widely used 20-item instrument with internal consistency (Cronbach's $\alpha = .84$). The intervention spanned for a duration of 15 days, with each session lasting one hour and incorporating modules on building resilience, self-awareness, strengthening mindset, mindfulness, and stress management. All sessions were activity-based and inferred with a 15-minute mindfulness meditation. The RAW scale was administered as a pre-test prior to the intervention and as a post-test upon completion to assess changes in resilience levels. The primary data were analysed using SPSS with descriptive statistics and paired-sample t-tests to determine the effectiveness of the intervention.

Data Analysis

Out of 45 women employees, a majority of them, about two-fifth were aged between 40-50 years. A significant proportion, less than three-tenth were aged between 30-40 years. Less than one-fourth were aged between 20-30 years; only one employee was aged above 50 years. The average age of the participants is 37 years. It can be inferred from the empirical data that a good chunk of women employees are middle aged. In terms of family structure, a majority of the employees, more than three-fourth belonged to nuclear families, whereas more than one-fourth belonged to joint families. It is to be noted that majority of the women employees had absence of support from the family members in attending household chores and performing duty at industry due to nature of nuclear

family. It is true in the cities like Bengaluru as both partners are required to work and in the absence of parents or other supporting members, they struggle to raise their kids and balance between work and life. In terms of marital status, nearly three-fourth of the respondents were married, indicating that the majority of women employees had family responsibilities alongside work, they are responsible to attend their partners and offspring. It is also reproductive age of the women employees and possibilities of conceiving and child rearing are likely to be high. About one-seventh of the sample comprised unmarried women, while only a very small fraction approximately one-twentieth were deserted. Additionally, around one-fifteenth of the respondents were widowed. It is clear from the data that most of the participants are married women.

Table-1: Descriptive Statistics of pre and post Intervention

Intervention on Employee Resilience	Mean	Std. Deviation	Std. Error Mean
Pre-intervention	75.62	3.27	0.488
Post-intervention	101.82	3.743	0.558

The descriptive statistics indicate a clear improvement in resilience levels following the intervention. The mean resilience score of the women workers increased substantially from 75.62 before the intervention to 101.82 after the intervention, showing an overall increase of 26.2 points (see Table-1). This notable improvement demonstrates that the resilience-building sessions had a meaningful impact on the participants' ability to cope with workplace demands. *It is true in the case of Ms. Usha (name changed), a 45-year-old production-line worker, initially reported feeling overwhelmed during peak work hours and struggled to manage sudden workload changes which lead her to express stress in the form of anger. After participating in the sessions, particularly the mindfulness and stress-management modules, she reported feeling calmer and more in control. She shared that now she practices the one-minute breathing exercise before reacting to stressful situations. Her post-intervention resilience score showed a significant rise, mirroring the overall trend observed in the larger group.*

Table-2: Results of Paired Sample t-test post Interventions

Mean	Std. Deviation	Std. Error Mean	T	df	Sig. (2-tailed)
-26.2	4.541	0.677	-38.706	44	0.001

The results of the paired sample t-test further strengthen the evidence for the effectiveness of the intervention. A statistically significant difference was observed between the pre-test and post-test resilience scores, $t(44) = -38.71$, $p < .001$ (see Table-2). Since the post-test mean score (101.82) was much higher than the pre-test mean score (75.62), it clearly indicates that the resilience training program was effective in enhancing resilience among the women employees. The negative t-value reflects the magnitude of improvement achieved during the intervention period.

Discussion

The present study aimed to examine the effectiveness of a resilience enhancement intervention among women employees working in a food manufacturing industry. The results revealed a significant improvement in the post-test resilience scores compared to the pre-test scores, indicating that the intervention was successful in strengthening the participants' coping abilities, emotional regulation, and adaptability to workplace challenges. The marked increase in mean resilience scores observed in this study supports the view that resilience is not a fixed trait but a dynamic capacity that can be developed through targeted interventions. From an organizational perspective, the results indicate that resilience-building interventions can be an effective component of employee development strategies. Embedding such training into routine human resource development activities may lead to long-term benefits, including higher engagement and greater job satisfaction.

The study findings are consistent with earlier research emphasizing that resilience can be improved through structured interventions (Cooke et al., 2019; and Karpagavalli, 2019). In the context of organization, women employees, who form the majority of the workforce in many such settings, often balance both professional and domestic responsibilities, making resilience a key determinant of well-being and productivity.

Suggestions

1. Industries employing women workers can incorporate short, structured resilience sessions into their training calendar to consistently build coping skills.
2. Employees should undergo training on mindfulness and breathing exercises to better handle stress.
3. Offer flexible scheduling for women with family responsibilities, as work–life balance strongly influences resilience.
4. Provide access to counselling or mental-health support.
5. Train supervisors in sensitization programs to ensure they create a workplace which is resilient and encourages motivation among employees.

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**Sustainable Marketing in the AI-Driven Sharing Economy:
A Theoretical Integration of TPB, SET, and TBL
towards SDG Achievement**

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Abstract

This study examines the role of Artificial intelligence (AI) in strengthening the Sharing economy and aligning it with the Sustainable Development Goals (SDGs). Building on insights from earlier research, it combines three key perspectives- the Theory of Planned Behaviour (TPB), the Social Exchange Theory (SET) and the Triple Bottom Line (TBL) – to understand the influence of individual behaviour, social trust, and sustainability outcomes interact with AI-based sharing platforms. The study focuses on five major factors: AI enabled service personalisation, platform reliability and ethical governance, digital literacy, consumer psychological intentions, and macro sustainable impact (SDG).

A descriptive- correlational research design was adopted, and data were gathered through a structured questionnaire from 200 active users of AI-driven sharing platforms such as ride sharing, accommodation, and online marketplaces. Participants were selected using purposive sampling technique. The collected data were analysed through weighted mean, regression, correlation, and reliability testing to identify the strength and direction of relationship among variables.

The findings indicate that AI -enabled personalisation enhances consumer satisfaction, ethical governance strengthens trust and reliability, and digital literacy promotes inclusivity and responsible participation. The study contributes to marketing literature by demonstrating the behavioural and sustainability outcomes of AI-integrating sharing platforms with an SDG framework.

Keywords: Sharing economy, Artificial Intelligence, Theory of Planned Behaviour, Social Exchange Theory, Triple Bottom Line, Sustainable Development Goals.

Introduction

The Sustainable Development Goals or SDGs, are a set of 17 global goals adopted by the United Nations in 2015 to create a better world by 2030. They focus on ending poverty, protecting our planet, and make sure everyone has the chance to prosper. What makes the SDGs so powerful is that they connect social, economic, and environmental issues—showing us that progress in one area is linked to progress others. In India, Sharing economy is becoming key player in achieving these goals. Platforms that encourage people to share resources—like vehicle sharing services from Ola Electric or innovative food delivery models like Swiggy’s cloud kitchens—are helping reduce waste, create important SDG targets such as responsible consumption, decent work and sustainable communities.

Artificial Intelligence (AI) is quietly powering much of this change. By analysing data and understanding user preferences, AI helps these platforms market their services more effectively, built trust among users, and promote choices that are better for both the people and the planet.

To understand why people, choose to participate in such sharing platforms, the Theory of Planned Behaviour (TPB)—a widely used framework in previous studies—explains that an individual’s attitude, social influences, and perceived control shape their intentions to engage. Social Exchange Theory (SET), also supported by research, sheds light on how trust, fairness, and reciprocal relationships develop between users and providers in the sharing economy. Finally, the Triple Bottom Line (TBL) approach broadens the focus beyond profits to include social and environmental impacts, ensuring a balanced view of sustainability outcomes.

These theories have been adopted from earlier research that tested their relevancy in collaborative consumption and sharing economy contexts—both globally and within India. By integrating TPB, SET, and TBL, this paper presents a comprehensive framework to explore how AI-enabled sustainable marketing in India’s sharing economy encourages participation, fosters trust, and delivers economic, social, and environmental value. This approach not only advances business practices but also supports India’s broader commitment to achieving the SDGs, making technological innovation and sustainability mutually reinforcing forces for positive change.

This paper focuses on five main factors that shape how AI supports the growth and sustainability of the sharing economy — AI-enabled service personalisation, platform reliability and ethical governance, digital literacy and accessibility, consumer psychological outcomes, and macro sustainable impact (SDG). These factors are guided by three key theories that help explain people’s behaviour, relationships, and long-term impact in this context. The Theory of Planned Behaviour (TPB) explains how attitudes, social influence, and a person’s sense of control affect their willingness to engage with AI-based sharing platforms. The Social Exchange Theory (SET) highlights how trust, fairness, and mutual benefit build stronger and more reliable digital relationships. The Triple Bottom Line (TBL) connects these ideas to sustainability by showing how business success also depends on social well-being and environmental responsibility.

Bringing these theories together, this study builds a clear framework that shows how AI-driven marketing in the sharing economy encourages participation, strengthens trust, supports digital inclusion, and contributes to India's sustainable development goals.

Objectives of this study

1. To determine the overall level of consumer perception and engagement across AI-driven, behavioural, and sustainability-oriented factors in the sharing economy.
2. To analyse the effect of AI-driven marketing and behavioural factors on sustainable outcomes within the sharing economy.
3. To examine the interrelationship between behavioural, technological, and sustainability-oriented factors contributing to macro sustainable outcomes within the AI-driven sharing economy.

Review of literature

The story of the sharing economy is really the story of how our relationship with things and with each other has changed over time. It began with a simple idea: owning something made it part of who we are. Belk (1988) described possessions as part of our “extended self,” saying that what we own shapes our identity. For decades, to own was to belong. But as the world became more connected, that belief began to shift.

By 2012, Bardhi and Eckhardt noticed that people were choosing to share cars instead of buying them — not because they couldn't afford ownership, but because they didn't want the weight of it. What mattered now was flexibility, access, and experience. Two years later, Belk (2014) returned to this thought, observing that in the digital age, people define themselves not by what they have but by what they do, share, and experience.

This shift wasn't just about convenience; it was emotional and social. Hamari et al. (2015) found that people share not only to save money but because it feels meaningful — it's fun, ethical, and connects them to others. Tussyadiah and Pesonen (2016) saw the same in travel: guests using peer-to-peer stays felt more authentic and local, less like consumers and more like participants. It reflected the heart of Social Exchange Theory (SET) — that people share when they feel trust, fairness, and a sense of mutual value.

As sharing platforms grew, technology became the bridge between these emotions and everyday behaviour. Lim (2019) showed how apps-built trust by making sharing simple and seamless. A year later, Davlembayeva et al. (2020) found that digital trust and participatory communities were what kept these platforms alive in the long run. Around the same time, a study in Sustainability (2021) linked the sharing economy to the UN Sustainable Development Goals (SDGs) — especially responsible consumption and innovation — showing that sharing naturally supports social inclusion and environmental care.

Then came the arrival of Artificial Intelligence (AI), changing the game once again. The Journal of Global Scholars of Marketing Science (2021) noted that AI helped platforms learn from users, personalise experiences, and strengthen trust. AI & Ethics (2021) highlighted how intelligent systems could drive ethical and sustainable behaviour, helping meet nearly 80% of SDG targets. In *Frontiers in Psychology* (2022), researchers found

that when users understood how algorithms made decisions, their emotional trust deepened they felt part of the system, not controlled by it.

From there, the story grew richer. Sustainability (2023) described how AI-infused sharing platforms began embodying the Triple Bottom Line (TBL) — balancing profit with people and the planet. Even as technology advanced, studies like Journal of Marketing Analytics (2024) reminded us that trust remained the emotional core of every digital exchange. The most recent works, such as those in the Journal of Innovation & Entrepreneurship (2025) and Management Review Quarterly (2025), reveal how AI-driven systems now foster transparency, fairness, and shared responsibility. Vezyroglou and Siokis (2025) even showed that AI-led pricing and matching make sharing smoother and more equitable — proof that technology and human values can grow together.

Looking back, it’s clear that the sharing economy isn’t just a business model — it’s a reflection of changing values. The Theory of Planned Behaviour (TPB) helps explain how our attitudes, social expectations, and sense of control are now shaped by digital experiences and AI-enabled trust. Social Exchange Theory (SET) reminds us that trust and reciprocity are still at the heart of sharing, while the Triple Bottom Line (TBL) keeps the focus on balance — profit, people, and planet together.

In essence, the journey from ownership to access is more than an economic shift — it’s a human one. It shows how technology and psychology are weaving a new kind of world, one built less on possession and more on participation, connection, and care.

Table No 1: Summary and Sources of literatures of factors

Factors	Relevant SDG	Article references
AI-Enabled service personalisation	SDG 9 (Industry, Innovation & Infrastructure), SDG 8 (Decent Work & Economic Growth), SDG 12 (Responsible Consumption & Production)	Zechiel, F. et al. (2024). "AI x Sustainability Strategy Framework." Technological Forecasting and Social Change.
Platform reliability and Ethical governance	SDG 9, SDG 13 (Climate Action)	Zinko, R., Furner, C. P., Arnold, T. J., & Ross, W. T. (2023). Managing sustainable sharing economy platforms. Sustainability, 15(7), 6293.
Digital Literacy and Accessibility	SDG 8, SDG 12	Digital Literacy for Business Performance: A Study of Entrepreneurs (2025) — High-tech & Innovation Journal
Consumer psychological intentions	SDG 8, SDG 9, SDG 12, SDG 13	Sharing Economy Service Experience and Its Effects on Behavioral Intention (Tsou et al., 2019)

Macro sustainable impact (SDG)	SDG 12, SDG 13, SDG 8, SDG 9	A Systematic Literature Review. Relationships between the Sharing Economy, Sustainability and Sustainable Development Goals (2020)
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Table No 2: Sources of Theories adopted

Theories	Constructs	Reference articles	Related Factors
Theory of Planned Behaviour (TPB)	Attitude, subjective norm, perceived behavioural control → Intention to participate. Helps explain how consumers' attitudes and perceived control	Intention determination of sharing economy business provider in the theory of planned behaviour model using partial least square (study case: Airbnb Indonesia) R Akbar, L Andrawina – 2018 International Conference on ..., 2019	Consumer psychological intentions, AI-enabled service personalisation

Research Methodology

Research design:

This study uses a descriptive quantitative design to understand how different factors—AI-enabled service personalisation, platform reliability and ethical governance, digital literacy and accessibility, consumer psychological intentions, and macro sustainable impact (SDG)—work together in shaping sustainable participation in the sharing economy. By collecting and analysing data from users of sharing platforms, the study aims to capture real patterns of behaviour and explore how technology, trust, and sustainability come together in everyday consumer decisions.

Sampling design:

The study engaged 200 active users of the sharing economy in Chennai through purposive sampling. Although modest in comparison to the city's estimated user base, similar behavioural studies have employed comparable sample sizes (Hamari et al., 2016; Möhlmann, 2015; Tussyadiah, 2015). According to Green (1991), a sample size exceeding 90 is adequate for regression analysis with up to five predictors, indicating that 200 participants ensure sufficient statistical power and reliability. Moreover, purposive inclusion of regular platform users enhances the validity of responses, aligning with established practices in sharing economy research.

Data collection:

Data were collected through an online structured questionnaire distributed via Google Forms. The tool measured key constructs—AI-enabled service personalisation, platform reliability and ethical governance, digital literacy and accessibility, consumer psychological intentions, and macro sustainable impact (SDG)—using a five-point Likert scale to capture participant perceptions and experiences accurately.

Data analysis:

Data were analysed using SPSS, employing description, correlation, and regression techniques to test the hypotheses.

Hypothesis:

This study explores how different aspects of AI-driven sharing platforms influence sustainable outcomes. It assumes, at the outset, that there may be no meaningful relationship between these factors until proven otherwise through statistical testing. To verify this, regression and correlation analyses were carried out to see how each variable contributes to the overall macro sustainable impact (SDG).

The null hypothesis (H₀) assumes that none of the selected factors have a significant influence on sustainable outcomes. The analysis focuses on understanding whether features like AI- enabled personalisation, platform reliability and ethical governance, digital literacy and accessibility, and consumer psychological outcomes make a measurable difference in achieving sustainability goals. A p-value less than 0.05 was considered statistically significant, indicating rejection of the null hypothesis and confirming the existence of a meaningful relationship between the variables.

Conceptual framework

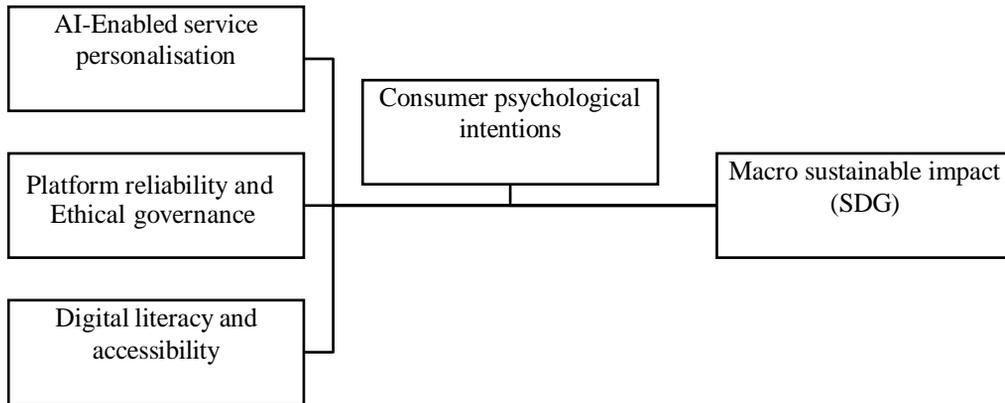


Figure 1: Theoretical Integration Model of TPB, SET, and TBL

This framework shows how technology and human behaviour together drive sustainability in the AI-driven sharing economy. AI-enabled personalisation, platform reliability and ethical governance, and digital literacy and accessibility shape consumer intentions, which in turn lead to sustainable outcomes aligned with the SDGs. Guided by the Theory of Planned Behaviour (TPB), it explains how attitudes and perceived control influence participation; the Social Exchange Theory (SET) highlights the role of trust and ethics; and the Triple Bottom Line (TBL) connects these behavioural and technological aspects to economic, social, and environmental impact. Together, they show how AI-based platforms can foster responsible participation and lasting sustainability.

Reliability analysis:

Table No 3: Cronbach's alpha

Cronbach's alpha	No. of items
0.87	26

The study examined the reliability of each statement using SPSS Cronbach's Alpha, a widely used measure of internal consistency for scale-based data. The overall Cronbach's Alpha value was 0.87 for 26 items, indicating an exceptionally high level of reliability.

Results

The collected data were analysed using statistical tools to summarise findings and interpret patterns, providing insights aligned with the study objectives.

Descriptive analysis

Table No:4 Demographic profile of the respondents

Variables	Particulars	Frequency	Percentage
Age	Below 20 years	21	10.4%
	20 – 25 years	58	28.8%
	25-35 years	58	28.8%
	35-40 years	30	15.2%
	40-50 years	16	8.0%
	Above 50 years	17	8.8%
Gender	Male	83	41.6%
	Female	117	58.4%
Marital status	Married	101	50.4%
	Single	99	49.6%
Monthly income	Upto 25000	35	17.6%
	25001-35000	34	16.8%
	35001-45000	67	33.6%
	45001-50000	18	8.8%
	Above 50000	46	23.2%
Occupation	Student	29	14.4%
	Employed	78	39.2%
	Self-Employed	22	11.2%
	Unemployed	59	29.6%
	Retired	12	5.6%
Educational level	Higher secondary	13	6.4%
	Diploma	19	9.6%
	Undergraduate	106	52.8%
	Postgraduate	50	24.8%
	Professional	12	6.4%

Source: Primary data

The demographic profile reveals that the majority of respondents are young adults aged between 20–35 years (57.6%), indicating that the sharing economy is primarily driven by younger, tech-savvy users. Most participants are female (58.4%), reflecting higher female engagement in AI-enabled platforms. The marital status distribution is fairly balanced, with 50.4% married and 49.6% single.

In terms of income, the largest group earns between ₹35,001–₹45,000 (33.6%), showing participation from middle-income segments who are likely to adopt digital sharing platforms for value-based consumption. Regarding occupation, 39.2% are employed, followed by students (14.4%) and unemployed respondents (29.6%), indicating diverse participation across economic backgrounds.

The educational profile shows that over half of the respondents (52.8%) are undergraduates, suggesting that most users are well-educated and digitally literate—an important factor supporting digital accessibility and sustainable engagement in AI-driven sharing platforms.

The weighted mean represents the average value of responses, taking into account the relative importance of each factor, while the standard deviation measures the degree of variation or dispersion from the mean.

Table No 5: Weighted mean and Standard deviation

Sr	Statement	Weighted Mean	Standard Deviation
1.	AI-Enabled service personalisation	4.13	0.62
2.	Platform reliability and Ethical Governance	4.15	0.64
3.	Digital Literacy and Accessibility	4.14	0.65
4.	Consumer Psychological intention	4.25	0.65
5.	Macro sustainable impact (SDGs)	4.19	0.64

Source: Primary data

The weighted mean scores (ranging from 4.13 to 4.25) indicate strong agreement among respondents across all five factors. Consumer psychological intention scored the highest (4.25), showing that motivation and trust strongly influence engagement in AI-driven sharing platforms. Macro sustainable impact (4.19) reflects positive perceptions of platforms contributing to SDGs. Platform reliability, digital literacy, and AI personalisation also showed high means, suggesting user confidence in ethical, inclusive, and personalised services. The low standard deviations (0.62–0.65) indicate consistent and stable responses across all dimensions.

Inferential Analysis

The subsequent section of the analysis focuses on examining the emotional dimensions of consumer psychological intentions and exploring how they influence Macro sustainability impact.

Table No 6: Regression analysis

Variables	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t- value	Sig. (p- value)
Constant	0.754	0.615		1.225	0.223
AI-Enabled Service Personalisation	0.312	0.082	0.329	3.817	0.000**
Platform Reliability and Ethical Governance	0.387	0.089	0.368	4.352	0.000**
Digital Literacy and Accessibility	0.271	0.075	0.296	3.612	0.000**
Consumer Psychological Intentions	0.334	0.081	0.341	4.112	0.000**

Source: Primary data Note: Significant at 1% level ($p < 0.01$)

Table No 7: Model Summary of Regression Analysis

Model	R	R Square	F Value	Sig. (p-value)
1	0.861	0.742	138.726	0.000**

Regression Equation:

$$Y = 0.754 + 0.312X_1 + 0.387X_2 + 0.271X_3 + 0.334X_4$$

Where:

Y = Macro Sustainable Impact (SDG)

X₁ = AI-Enabled Service Personalisation

X₂ = Platform Reliability and Ethical Governance

X₃ = Digital Literacy and Accessibility

X₄ = Consumer Psychological Intention

The regression analysis revealed a strong predictive relationship ($R^2 = 0.742$) between the independent factors and the macro-sustainable impact. This means that approximately 74% of the variance in sustainable impact is explained by AI personalisation, ethical governance, digital literacy, and consumer psychological intentions.

All four predictors were statistically significant ($p < 0.01$), confirming their positive influence on sustainable outcomes. Among them, Platform Reliability and Ethical Governance ($\beta = 0.368$) emerged as the strongest predictor, highlighting the role of trust and ethics in sustaining AI-driven platforms.

AI personalisation and digital accessibility also showed substantial positive effects, indicating that technological inclusiveness and relevance enhance users' willingness to

engage sustainably. Consumer psychological intention ($\beta = 0.341$) further amplifies this impact by mediating users' motivation to act in line with sustainability goals.

The subsequent section of the analysis focuses on examining the interrelationship among the factors

Factors	A	B	C	D	E
AI-Enabled Personalisation	1.000	0.846	0.812	0.834	0.789
Platform Reliability & Ethical Governance	0.846	1.000	0.827	0.853	0.876
Digital Literacy & Accessibility	0.812	0.827	1.000	0.888	0.857
Consumer Psychological Intention	0.834	0.853	0.888	1.000	0.901
Macro Sustainable Impact (SDG)	0.789	0.876	0.857	0.901	1.000

Source: Primary data

This table shows a strong positive correlation among all factors, indicating that these variables are closely related and tend to increase together. The correlations range from about 0.79 to 0.90, which represents strong to very strong associations. This suggests that AI-enabled personalization, platform reliability, digital literacy, and consumer psychological factors all significantly relate to macro sustainable impact (SDG) outcomes.

Table No:9 Correlation Matrix of Major Constructs

Relationship Type	From Variable(s)	To Variable(s)	Correlation Coefficient (r)	Significance (p-value)	Interpretation
Independent → Mediator	AI-Enabled Personalisation, Platform Reliability, Digital Literacy	Consumer Psychological Intention	0.81 – 0.85	<0.01	Strong, significant relationship
Mediator → Dependent	Consumer Psychological Intention	Macro Sustainable Impact (SDG)	0.90	<0.01	Very strong, significant
Independent → Dependent	AI-Enabled Personalisation, Platform Reliability, Digital Literacy	Macro Sustainable Impact (SDG)	0.79 – 0.88	<0.01	Strong, significant

Findings and Discussion

The analysis was carried out in line with the study objectives to understand consumer perceptions within the AI-driven sustainable sharing economy. Percentage analysis was used to summarise the demographic profile of respondents, while weighted mean and standard deviation assessed the level and consistency of responses across the identified factors. Correlation and regression analyses were employed to test the hypotheses and determine the strength and direction of relationships among variables. Collectively, the results provide valuable insights into how AI, ethical governance, and sustainability-oriented factors shape consumer behaviour and participation in the sharing economy.

Weighted mean and standard deviation:

The findings reveal that consumers demonstrate a strong and consistent positive perception across all five factors influencing participation in the AI-driven sustainable sharing economy. The weighted mean values, all above 4.0, indicate a high level of agreement toward AI-enabled service personalisation, platform reliability and ethical governance, digital literacy and accessibility, consumer psychological intention, and macro sustainable impact (SDGs). The low standard deviation values show response consistency, suggesting shared optimism toward AI integration and sustainability practices. These results align with the study's objective of assessing consumer engagement in technologically enhanced, ethically governed, and sustainability-oriented platforms, reflecting a growing trend toward responsible, value-driven, and trust-based participation in the sharing economy.

Regression:

The regression analysis reveals that all four independent variables—AI-enabled service personalisation, platform reliability and ethical governance, digital literacy and accessibility, and consumer psychological intentions—have a significant positive effect on the macro sustainable impact (SDGs) within the AI-driven sharing economy.

Among these, platform reliability and ethical governance ($\beta = 0.368$, $p < 0.001$) emerged as the strongest predictor, aligning with findings by Hamari et al. (2015) and Davlembayeva et al. (2020), who highlighted that trust and fairness strongly influence sustained platform engagement and ethical participation. Consumer psychological intentions ($\beta = 0.341$, $p < 0.001$) support Belk's (2014) and Tussyadiah & Pesonen's (2016) views that motivation and enjoyment are central to participation in collaborative consumption.

AI-enabled service personalisation ($\beta = 0.329$, $p < 0.001$) confirms Lim (2019) and Huang et al. (2024) who noted that intelligent personalisation enhances user satisfaction and engagement by aligning digital experiences with individual preferences. Finally, digital literacy and accessibility ($\beta = 0.296$, $p < 0.001$) echo Quattron et al. (2022), emphasizing that digital competence enables equitable participation and sustainability outcomes.

Together, these results validate that technological, psychological, and ethical dimensions jointly influence sustainable consumer behaviour—reinforcing the theoretical integration of TPB, SET, and TBL in understanding AI-enabled participation in the sharing economy.

Pearson's Correlation:

The correlation analysis shows strong positive relationships among all key variables, with coefficients ranging from 0.789 to 0.901, indicating a highly interconnected structure among technological, ethical, cognitive, and sustainability dimensions in the sharing economy. The highest correlation ($r = 0.901$) between consumer psychological intention and macro sustainable impact (SDGs) demonstrates that stronger consumer motivation and attitude towards sharing directly translate into greater sustainable behavioural outcomes—consistent with Hamari, Sjöklint, & Ukkonen (2015) and Belk (2014), who noted that psychological engagement and altruistic motives underpin collaborative consumption.

The strong association between platform reliability and ethical governance and macro sustainable impact ($r = 0.876$) supports Davlembayeva et al. (2020) and Ozanne & Ballantine (2010), affirming that ethical integrity and platform trust enhance participation in sustainable ecosystems. Similarly, the correlations of digital literacy and accessibility with both consumer psychological intention ($r = 0.888$) and sustainability outcomes ($r = 0.857$) align with Quattron et al. (2022) and Zeng et al. (2023), suggesting that higher digital competence enables informed, responsible, and sustainable consumer actions.

Overall, these results indicate that AI personalisation, ethical platform practices, digital capability, and consumer psychology operate as mutually reinforcing factors that collectively strengthen SDG-aligned participation in the sharing economy.

Conclusion

This study provides a comprehensive understanding of how Artificial Intelligence (AI) is transforming consumer psychology and driving sustainable participation within the sharing economy. By combining the insights of the Theory of Planned Behaviour (TPB), Social Exchange Theory (SET), and the Triple Bottom Line (TBL), the research establishes how behavioural, relational, and sustainability dimensions are closely intertwined.

The findings reveal that AI-enabled service personalisation not only enhances convenience but also nurtures a sense of trust and relevance among consumers, which is crucial for sustained participation. Platform reliability and ethical governance act as the foundation of perceived fairness and reciprocity—principles central to SET—where consumers engage more deeply when they feel secure and valued. Likewise, digital literacy and accessibility empower individuals to participate confidently in technology-driven platforms, thereby strengthening the behavioural control component of TPB.

Consumer psychological intention plays a pivotal role in connecting these elements. When users experience emotional satisfaction, social recognition, and perceived moral benefit from using AI-enabled platforms, they are more inclined to support sustainable choices. This psychological transformation gradually extends beyond individual gain to collective well-being, reinforcing macro-level sustainable impact in line with the Sustainable Development Goals (SDGs).

In essence, the integration of TPB, SET, and TBL within this study suggests that sustainability in the AI-driven sharing economy is not achieved through technology alone

but through the psychological and social awakening it triggers among consumers. AI personalisation and ethical digital ecosystems shape attitudes and trust, which, in turn, guide individuals toward more mindful, responsible, and sustainable participation. Thus, the sharing economy, empowered by AI and grounded in human values, becomes a bridge between consumer satisfaction and global sustainability transformation.

Scope and Limitations:

This study explores the intersection of artificial intelligence (AI), consumer behaviour, and sustainability within the sharing economy, focusing on how AI-enabled marketing practices influence users' participation and alignment with the Sustainable Development Goals (SDGs). The research integrates the Theory of Planned Behaviour (TPB), Social Exchange Theory (SET), and the Triple Bottom Line (TBL) to understand how attitudes, trust, reciprocity, and perceived ethical value contribute to sustainable consumer intentions.

The scope includes five key constructs—AI-enabled service personalisation, platform reliability and ethical governance, digital literacy and accessibility, consumer psychological intention, and macro-sustainable impact. The study is geographically limited to Indian sharing economy users, with a focus on emerging urban markets where digital adoption and sustainability awareness are rapidly growing. Insights from this research can guide marketers, policymakers, and digital platform developers in designing AI-driven strategies that balance technological innovation with social and environmental responsibility.

This study, while offering valuable insights into how AI-driven marketing practices influence sustainable consumer behaviour in the sharing economy, is subject to certain limitations. The research is based on a limited sample of 200 respondents, largely representing urban users familiar with digital platforms, which constrains the generalisability of the findings to the wider and more diverse population. The cross-sectional design restricts the ability to capture evolving behavioural patterns or causal relationships over time. Although the integration of the Theory of Planned Behaviour (TPB), Social Exchange Theory (SET), and the Triple Bottom Line (TBL) provides a strong theoretical foundation, it primarily explains rational and exchange-based motivations, leaving emotional, cultural, and contextual influences underexplored.

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**Sustainable Agriculture and Food Security in India:
The Role of Social Work Interventions in Advancing
Climate-Resilient Practices for Viksit Bharat @ 2047**

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Abstract

Climate change poses a significant challenge to India's agricultural sector, endangering the livelihoods of millions of agricultural labourers who are already vulnerable to poverty and food insecurity. Sustainable agriculture is increasingly acknowledged as a vital approach to ensuring food security, conserving natural resources, and bolstering resilience against climatic shocks. This article adopts a descriptive method, utilising secondary data from national surveys, government reports, and international databases, to investigate the nexus between sustainable agriculture, food security, and the pivotal role of social workers in promoting climate-resilient practices. The analysis underscores persistent issues such as irregular rainfall patterns, soil degradation, water scarcity, and inequitable access to resources, which continue to adversely affect rural communities. Evidence from policy initiatives like the National Food Security Mission, Paramparagat Krishi Vikas Yojana, and PM-KUSUM illustrates efforts towards sustainability but also exposes deficiencies in their grassroots implementation. The article emphasizes how social workers, through community mobilization, awareness campaigns, and facilitating access to welfare schemes, can serve as critical enablers of climate resilience.

Aligning these interventions with the national aspiration of Viksit Bharat @ 2047 provides a strategic framework to secure sustainable livelihoods, guarantee food security, and fortify rural resilience as India progresses towards inclusive and climate-conscious development.

Key Words: Climate Change Challenges, Agricultural labourers, Social Work Interventions

Introduction

India, a global agricultural powerhouse and the world's largest producer of milk, pulses, and spices, faces significant challenges in sustaining its agricultural productivity and ensuring food security amidst a changing climate (Jana & Basu, 2024; Singh & Singh, 2024). The country's agricultural sector, supporting a substantial portion of its 1.4 billion people, is highly vulnerable to escalating climate change impacts, including increased dry spells, intensified extreme rainfall, heatwaves, and cyclonic events (Chauhan & Wehrden,

2025; Mohanty & Wadhawan, 2021). These shifts directly threaten agricultural livelihoods, food availability, and nutritional security (Pathak, 2023).

Viksit Bharath – 2047 is a phenomenal initiative launched by the Government of India on 11th December 2023 to make our nation a fully developed nation by 2047, which is the 100th year of Independence. (Jayaprada Sahoo and Dr. Suresh Vadranam. 2024). Viksit Bharat @ 2047 requires climate-conscious, equity-aware pathways for food security and agricultural resilience. Social work, as eco-social practice, is uniquely positioned to integrate human development, community organization, and rights-based advocacy into climate-smart transitions.

This paper describes how such interventions can foster sustainable agricultural practices, enhance food security, and build climate resilience among farming communities, contributing to Viksit Bharat @ 2047.

Climate Change Impacts on Indian Agriculture:

The climate change exacerbates existing vulnerabilities in Indian agriculture, leading to decreased crop yields, increased frequency of extreme weather events, and heightened food and nutritional insecurity, particularly among smallholder farmers (Ghosh-Jerath et al., 2021). These impacts include reduced arable land, lower crop yields, and threatened food security due to climate impacts such as floods, sea level rise, and increased frequency of storms (Balasubramanian et al., 2022) (Das & Swain, 2024). Moreover, the majority of India's population engaged in agricultural activities still faces precarious livelihoods due to their dependence on monsoon rains and the unorganized nature of agricultural labor, which leads to income insecurity and a lower quality of life (Jana & Basu, 2024). Furthermore, climate change exacerbates these vulnerabilities by introducing unpredictable weather patterns, which directly threaten agricultural productivity and the stability of food supplies (Kumar & Thangavel, 2025) (Islam & Farjana, 2024). This precarious situation is further complicated by the fact that the majority of India's poor reside in rural areas and depend on agricultural incomes, rendering them highly susceptible to climate-induced disruptions (Jana & Basu, 2024).

The Vision of Viksit Bharat @ 2047 and Climate Resilience:

The integration of sustainable agricultural practices and food security measures is paramount for realizing this vision, ensuring that economic growth is inclusive and environmentally sound (Mohanty & Wadhawan, 2021). This necessitates a systemic shift towards climate-resilient agriculture, which offers a multifaceted approach to mitigate the adverse impacts of climate change on food systems while simultaneously promoting environmental sustainability (Viswanathan et al., 2020).

Sustainable Agriculture–Food Security Nexus: A Synthesis

The synthesis of sustainable agriculture and food security emphasizes the critical need for an integrated approach that addresses both environmental stewardship and human well-being (Some, 2024). This nexus highlights the intricate interdependencies between ecological health, agricultural productivity, and the equitable distribution of food resources, thereby underscoring the urgency for systemic transformations in India's agricultural sector to build resilience against climate change impacts (Palanisami et al.,

2014). India's agricultural sector faces significant structural and policy hurdles, including resource overexploitation, unequal land distribution, and high susceptibility to climate risks (Chauhan & Wehrden, 2025).

Role of Social Work in Sustainable Development:

Social work, with its focus on human-environment interactions and social justice, plays a pivotal role in facilitating the transition to sustainable agricultural practices and enhancing food security within the context of climate change.

While social work interventions have historically focused on broader community development, their specific application within agricultural contexts, especially concerning climate change adaptation and food security, remains a burgeoning field that warrants deeper exploration (Ramifehiarivo et al., 2022). This includes an analysis of how social workers can facilitate the adoption of climate-smart agricultural practices to mitigate climate change impacts, among vulnerable farming populations (Saran et al., 2024).

This discipline integrates community-based participatory approaches to empower labourers and farmers, especially those in vulnerable regions, to adapt to climatic variabilities and adopt climate-resilient practices (Palanisami et al., 2014). Social workers can advocate for long-term solutions and capacity building in disaster interventions, emphasizing egalitarian partnerships with survivors, which is especially pertinent for rural farming communities in India (Dominelli & Rumi, 2010).

Gap Analysis in Current Research:

Despite growing recognition of climate change's agricultural impacts, there remains a notable lacuna in research specifically exploring the systematic integration and evaluative efficacy of social work interventions in fostering climate resilience and food security within India's agrarian sector.

This gap underscores the necessity for comprehensive research that not only identifies successful social work methodologies but also quantifies their impact on enhancing adaptive capacity and ensuring food security in the context of a rapidly changing climate (Jatav, 2024) (Dominelli & Rumi, 2010). Furthermore, existing literature often overlooks the complex interplay between farmers' perceptions of climate change, their socio-economic characteristics, and the adoption of adaptive strategies, highlighting a critical area for social work research (Jatav, 2024).

Methodology

This study employs a secondary data analysis approach to systematically review and synthesize existing literature, policy documents, and statistical data concerning sustainable agriculture, food security, climate change, and social work interventions in India. This methodology allows for a comprehensive understanding of the interdependencies between these critical areas, particularly in the context of achieving the Viksit Bharat @ 2047 vision.

Objectives

1. Critically analyse climate-agriculture stressors and their food-security implications in India

2. Review major sustainability policies and schemes with a focus on implementation gaps
3. Theorize and evidence the role of social work in enabling climate-resilient practices
4. To provide actionable implications with Viksit Bharat @ 2047 and the SDGs.

Data Sources and Collection Strategy

The data for this research will be meticulously gathered from a diverse array of academic databases, government reports, and organizational publications to ensure a robust and multifaceted perspective on the chosen topics.

Inclusion and Exclusion Criteria

The selection of relevant literature will adhere to strict criteria, focusing on peer-reviewed articles, policy briefs, and reports published within the last two decades that specifically address sustainable agriculture, food security, climate change impacts, and social work interventions in the Indian context. Conversely, studies that do not directly pertain to India or lack a clear focus on the specified thematic areas will be excluded to maintain the thematic relevance and geographical specificity of the review.

Data Analysis Techniques

A systematic thematic analysis will be applied to synthesize the selected literature, identifying recurring themes, emerging patterns, and critical insights into the effectiveness and challenges of current approaches.

Ethical Considerations

Given that this research relies on secondary data, ethical considerations primarily involve ensuring the responsible use and accurate representation of previously published information. All sources will be properly attributed, and careful attention will be paid to avoid misinterpretation or misrepresentation of the original authors' findings, ensuring academic integrity and respect for intellectual property.

Limitations of the Study

While this paper elucidates the vital role of social work in fostering climate resilience, it acknowledges certain limitations, primarily its reliance on secondary data, which inherently constrains the depth of analysis on specific intervention outcomes and their localized impacts. Future research should therefore prioritize primary data collection through mixed-methods approaches, including longitudinal studies and participatory action research, to evaluate the nuanced impacts of social work interventions on farmer as well as agricultural labourers' livelihoods.

Thematic Analysis:

Sustainable Agriculture and Food Security Landscape in India:

India, a nation with a predominantly agrarian economy, faces significant challenges in ensuring both sustainable agricultural practices and food security for its vast population (Gadad & Kadam, 2023). As a global agricultural powerhouse, India produces a significant portion of the world's milk, pulses, and spices, yet approximately 63% of its cultivated land remains rainfed, making it highly susceptible to climate variability and

directly impacting agricultural labourers who are often landless and unorganized (Jana & Basu, 2024) (Gadad & Kadam, 2023).

This vulnerability is further compounded by climate change, which exacerbates existing inequalities and disproportionately affects marginalized communities dependent on agriculture for their livelihoods (Balasubramanian et al., 2022). Approximately 53% of the Indian population remains engaged in agricultural activities, underscoring the sector's pervasive influence on livelihoods despite its reduced economic contribution (Jana & Basu, 2024) (Gadad & Kadam, 2023). This extensive reliance on agriculture, however, is increasingly threatened by a plateauing of net sown area, deteriorating soil quality, and a reduction in per capita land availability, alongside the adverse effects of climate change (Palanisami et al., 2014).

Current Status of Agricultural Practices:

Historically, the Green Revolution significantly boosted India's food production through such intensive practices, inadvertently leading to widespread environmental damage (Jha et al., 2024). Consequently, the long-term sustainability of these practices has been called into question, necessitating a shift towards more ecologically sound approaches (Makkar et al., 2023). Moreover, the dependence on the southwest monsoon for approximately 80% of India's annual rainfall highlights the critical vulnerability of rainfed agriculture to altered precipitation patterns due to global warming. (Bastia et al., 2025). For instance, the adoption of drought-tolerant and less water-consuming crops, along with early-maturing and climate-resilient seed varieties, represents critical adaptations for farmers in rainfed and semi-arid regions prone to droughts (Jatav, 2024). However, a significant knowledge gap persists among farmers regarding these sustainable techniques, necessitating extensive education and training programs to effectively disseminate such vital information (Makkar et al., 2023).

Food Production and Distribution Systems:

India's food production and distribution systems are complex, characterized by a dual challenge of ensuring adequate supply while minimizing post-harvest losses and ensuring equitable access across diverse socio-economic strata. Despite being a leading global food producer, India faces significant hurdles in food security due to challenges in affordability, quality, and sustainable agricultural practices, which are exacerbated by an ageing technological infrastructure and weak institutional frameworks within the agricultural sector (Jain et al., 2023).

Furthermore, issues such as insufficient storage facilities, inefficient supply chains, and inadequate market infrastructure contribute to considerable food waste and limit the effective reach of produce to all segments of the population (Jana & Basu, 2024).

Vulnerabilities to Climate Change:

These multifaceted climatic disruptions directly compromise agricultural productivity, intensifying the demand-supply gap for essential agricultural commodities (Mohapatra et al., 2022). Such environmental stressors, coupled with existing infrastructural limitations like poor cold storage and unreliable transportation, further compromise the efficiency and sustainability of India's food supply chain (Sajankar et al., 2025). The

Intergovernmental Panel on Climate Change projects that India will experience decreased seasonal mean rainfall but increased extreme precipitation during monsoons, leading to both floods and droughts, which will profoundly impact freshwater resources and agricultural yields (Palanisami et al., 2014).

These climate-induced hydrological shifts disproportionately affect rain-fed agriculture, which constitutes a significant portion of India's cultivated land, making farmers and agricultural labourers increasingly vulnerable to crop failures and livelihood insecurity (Palanisami et al., 2014). The resultant climatic stressors, particularly the spatial and temporal variability in rainfall, continue to render the seasonal and annual yields from Indian agriculture uncertain (Aggarwal et al., 2022).

Government Initiatives and Policies:

Recognizing these profound challenges, the Indian government has implemented a diverse array of initiatives and policies aimed at bolstering agricultural resilience, promoting sustainable practices, and enhancing food security across the nation (Palanisami et al., 2014). These interventions range from direct financial support and technological dissemination to the promotion of climate-resilient agriculture and robust policy frameworks designed to mitigate the adverse impacts of environmental degradation and climate change on the agricultural sector (Chauhan & Wehrden, 2025).

A key strategy involves substantial investments in climate-smart agricultural practices and infrastructure, alongside efforts to improve resource efficiency and diversify livelihood options for farmers (Global Climate Change: Implications for Indian Agriculture, 2007). These initiatives include flagship programs such as the National Initiative on Climate Resilient Agriculture, which undertakes systematic, long-term research on the impact and adaptation of Indian agriculture to climate change, encompassing grain crops, horticulture, natural resources, livestock, and fisheries (Palanisami et al., 2014).

Further, the National Mission for Sustainable Agriculture, operational since 2014-15, seeks to enhance agricultural productivity and sustainability through integrated farming systems and efficient water management, aligning with the broader goal of climate resilience (Bopanna, 2021). This mission focuses on adopting location-specific sustainable management practices, promoting resource conservation technologies, and fostering the development of climate-resilient farming systems (Singh & Singh, 2024). National Food Security Mission, which was started in 2007 and renamed as National Food Security and Nutrition Mission (2024) focused on increasing the productivity of key crops like rice, wheat and pulses ensures the food security. Paramparagat Krishi Vikas Yojana (2007) was implemented to promote organic farming systems and climate-resilient crops. PM- Kusthuk Yojana (2019) was a great initiative of establishing solar grids and solar connected water pumps in the farm lands for ensuring energy supply and economic stability.

The government also emphasizes the pivotal role of women in agricultural development, allocating at least 30% of scheme budgets for components benefiting women farmers, recognizing their unique contributions and vulnerabilities within the sector (Palanisami et al., 2014). Beyond these overarching initiatives, specific schemes like the Pradhan Mantri

Krishi Sinchayee Yojana are critical for improving water use efficiency through micro-irrigation and other water conservation techniques, thereby directly addressing one of the most pressing climate vulnerabilities (Palanisami et al., 2014). Additionally, organizations such as the National Adaptation Fund for Climate Change and the Green Climate Fund contribute substantial financial resources to support climate-resilient agriculture, sustainable water management, and soil conservation initiatives across India (Makkar et al., 2023). These financial mechanisms are crucial for scaling up innovative agricultural practices and technologies that enhance resilience against climate variability, including crop suitability studies, flood management protocols, and crop insurance schemes (Parviz, 2024).

Social Work Interventions in Advancing Climate-Resilient Practices

Social work interventions are pivotal in translating these governmental policies into actionable, community-level strategies, particularly by enhancing farmers' adaptive capacity and promoting the widespread adoption of climate-smart agriculture practices (Jatav, 2024).

Community Mobilization and Empowerment

Such interventions are crucial for building resilience against climate change by integrating local knowledge with scientific advancements to develop agricultural practices that are both sustainable and responsive to changing environmental conditions (Sahoo et al., 2024). These interventions often focus on strengthening social capital within rural communities, facilitating collective action, and advocating for policies that support smallholder farmers and agricultural labourers in transitioning to climate-resilient agricultural systems, thereby addressing vulnerabilities related to pest and disease infestation, as well as extreme weather events (Palanisami et al., 2014).

Capacity Building and Training Programs

These programs aim to equip farmers with the necessary knowledge and skills to adopt climate-resilient agricultural practices, including diversification into agriaquaculture and improved livestock management (Rana et al., 2021). These initiatives also focus on enhancing farmers' understanding of climate finance mechanisms, enabling them to access crucial funding for implementing sustainable practices (Makkar et al., 2023). This integration of financial literacy with practical agricultural training is fundamental to scaling out climate-smart agriculture practices, fostering widespread adoption, and making agriculture more sustainable and a viable source of livelihood and food security for millions of farmers (Ghosh, 2019).

Promoting Traditional and Indigenous Knowledge

Social work interventions play a crucial role in documenting, revitalizing, and integrating traditional ecological knowledge with contemporary climate-resilient strategies, acknowledging its profound value in local adaptation to environmental changes (Jatav, 2024).

Facilitating Access to Resources and Technologies

Social work interventions are instrumental in bridging the gap between smallholder farmers and vital resources, ensuring equitable access to improved seeds, irrigation

technologies, and sustainable farming inputs (Mnukwa et al., 2025). This facilitation extends to financial resources, such as micro-credit and agricultural insurance, which are crucial for mitigating risks, and enabling farmers to invest in climate-resilient practices, enabling them to make informed decisions regarding agricultural innovations (Ramifehiarivo et al., 2022). Additionally, social workers can help farmers navigate complex bureaucratic processes to access government subsidies and technical assistance programs, thereby reducing transaction costs and improving uptake of climate-smart agricultural practices (Ma & Rahut, 2024).

Advocacy and Policy Influence

Social work professionals are strategically positioned to advocate for promoting financial incentives that encourage the adoption of climate-smart agricultural practices, including precision farming, agroforestry, and the use of biofertilizers, thereby transitioning farmers towards more sustainable models (Makkar et al., 2023).

Impact and Effectiveness of Social Work Interventions

These interventions are crucial for enhancing the adaptive capacity of farming communities and promoting the widespread adoption of climate-resilient agricultural practices, contributing significantly to food security and sustainable development goals.

Enhancing Adaptive Capacity of Farmers

By integrating local knowledge with scientific advancements and facilitating access to resources, these interventions empower farmers to anticipate and respond effectively to climate variability and extreme weather events (Ngongolo & Gayo, 2024). Such initiatives empower farmers to become proactive problem-solvers, leveraging their innate capacity for adaptation to implement innovative strategies for extreme weather events (Arbuckle et al., 2014).

Improving Livelihood Security

Social work interventions contribute significantly to improving livelihood security by promoting diversified farming systems, which reduce reliance on single crops and enhance income stability, particularly for smallholder farmers. These interventions also facilitate access to markets and value chains, ensuring better returns for agricultural produce and fostering economic resilience against market fluctuations and environmental shocks (Konfo et al., 2024). This approach mitigates the adverse effects of climate change on agricultural productivity and crop stability, which are critical for preventing food and nutritional insecurity (Ma & Rahut, 2024).

Fostering Sustainable Resource Management

Social work interventions actively promote the adoption of sustainable resource management practices, such as conservation agriculture and precision farming, which optimize resource utilization and minimize environmental degradation (Palanisami et al., 2014). By encouraging the use of these advanced techniques, social workers help farmers protect critical ecosystems and maintain the long-term viability of their agricultural land, ensuring food security for future generations (Dönmez et al., 2024).

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Challenges and Limitations of Interventions

Despite the demonstrated benefits, these interventions encounter significant challenges, including limited funding, inadequate infrastructure, and resistance to change among certain farming communities. (Dominelli & Rumi, 2010).

Furthermore, the successful implementation of these interventions often hinges on addressing socio-psychological barriers to adaptation and developing competencies among farmers or labourers in acquiring relevant knowledge and skills (Palanisami et al., 2014). Addressing these challenges necessitates a deeper understanding of farmer perceptions on climate change adaptation and mitigation, as trust in information sources significantly influences the adoption of new practices (Arbuckle et al., 2014).

Towards Viksit Bharat @ 2047: Implications for Policy and Practice

Achieving the vision of Viksit Bharat @ 2047 necessitates a concerted effort to scale up climate-resilient agricultural practices through targeted policy interventions and practical support for farming communities.

Strengthening Inter-sectoral Collaborations

This involves fostering stronger partnerships between government agencies, academic institutions, non-governmental organizations, and local communities to ensure a holistic and coordinated approach to sustainable agricultural development (Global Climate Change: Implications for Indian Agriculture, 2007).

Integrating Social Work into Agricultural Extension Services

This integration could embed social workers directly within agricultural support systems, enabling them to address the socio-economic dimensions of climate vulnerability and foster community-led adaptation strategies. This approach would facilitate the transfer of climate-smart agricultural practices, enhancing productivity and profitability for farmers (Farah et al., 2025).

Policy Recommendations for Climate-Resilient Agriculture

Effective policy frameworks are crucial for incentivizing the adoption of climate-smart agricultural practices and ensuring equitable access to resources and knowledge for all farmers (Safdar et al., 2024). These frameworks should prioritize the development of robust early warning systems, climate-resilient infrastructure, and financial mechanisms that support smallholder farmers in transitioning to sustainable practices (Balasubramanian et al., 2022).

Future Directions for Social Work Research and Practice

Further research is needed to explore the efficacy of various social work intervention models in diverse agricultural contexts across India, specifically examining their long-term impact on farmer resilience and food security outcomes (Dominelli & Rumi, 2010). Moreover, this research should investigate the cost-effectiveness of adaptation and mitigation strategies, recognizing that the long-term costs of inaction far exceed the initial investments in climate-responsive agriculture (Global Climate Change: Implications for Indian Agriculture, 2007). Additionally, it is crucial to analyze how climate finance can be effectively channeled through various stakeholders, including NGOs, to maximize its

utility and drive widespread adoption of sustainable agricultural practices (Makkar et al., 2023).

Conclusion

This paper has highlighted the critical role of social work interventions in advancing climate-resilient practices for sustainable agriculture and food security in India, particularly in the context of achieving Viksit Bharat @ 2047. These interventions are crucial for addressing the socio-economic vulnerabilities of farming communities and labourers involved in, fostering sustainable resource management, and promoting the widespread adoption of climate-smart agricultural practices. This study contributes to the extant literature by consolidating evidence on the efficacy of social work approaches in building agricultural resilience, particularly for marginalized groups disproportionately affected by climate change.

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Knowledge and Awareness of Menopause: Health-Seeking Patterns among Midlife Women

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Abstract

Menopause marks a significant biological and psychosocial transition in a woman's life, yet awareness and understanding of its implications remain limited among many midlife women, particularly in developing contexts. This paper presents a secondary review assessing existing literature on women's knowledge, awareness, and health-seeking behaviours related to menopause and post-menopause. The rationale for this review arises from the growing recognition that misconceptions, cultural taboos, and inadequate health education contribute to poor symptom management and reduced quality of life. The study adopted a descriptive review design based on secondary data sourced from national and international peer-reviewed journals, government health reports, and academic databases published between 2010 and 2024. The review analyzed 45 selected studies focusing on awareness levels, information sources, attitudes toward menopause, and the utilization of healthcare services among mid-aged women. Findings reveal that although awareness about the physiological aspects of menopause has improved in urban populations, significant gaps persist in rural and semi-urban settings. Many women associate menopause with illness rather than a natural life stage, leading to reluctance in seeking professional help. Cultural silence, inadequate counselling by healthcare providers, and lack of accessible educational interventions further hinder proactive health behaviour. The paper emphasizes the need for comprehensive community-based awareness programmes, inclusion of menopause education in public health initiatives, and strengthened counselling support through primary healthcare systems.

Keywords: Menopause, Awareness, Health-Seeking Behaviour, Midlife Women, Secondary Review, Women's Health

Introduction

Menopause is a universal physiological transition in the life of a woman, marked by the permanent cessation of menstruation, signifying the end of reproductive capacity and accompanied by a decline in ovarian hormone production. Over recent decades, as women's lifespans have increased globally, the years spent in the post-menopausal state

have also grown, making menopause and its implications a significant public health and social concern. Despite its universality, the awareness, understanding and health-seeking behaviour of mid-life women regarding menopause vary widely across cultural, socioeconomic and geographic contexts.

The rationale for this review arises from evidence that limited knowledge and awareness of menopause can lead to delayed or absent help-seeking, sub-optimal management of symptoms, lower quality of life and increased risk of long-term health consequences (e.g., osteoporosis, cardiovascular disease). Furthermore, many women regard menopause simply as a natural part of ageing, or a private matter, rather than a window for health promotion and preventive care. This is particularly true in rural or resource-poor settings, where cultural taboos, limited health education and inadequate health services compound the challenge.

The aim of this paper is to undertake a comprehensive secondary review of national (Indian) and international studies on knowledge/awareness of menopause and associated health-seeking patterns among mid-life women. Specifically, the review seeks to answer: (1) What is the level of knowledge and awareness about menopause among midlife women? (2) What are the prevailing patterns of health-seeking behaviour in relation to menopausal symptoms? (3) What barriers and facilitators affect help-seeking in this context? (4) What interventions have been shown to improve knowledge and awareness? By synthesising the literature, this review hopes to inform social work practitioners, public health professionals and policymakers about the gaps and opportunities in supporting mid-life women through the menopausal transition.

The paper proceeds by first presenting a thematic literature review, followed by the methodology of the review, then a discussion of findings and implications, and finally concluding remarks.

Literature Review

Theme A: Knowledge and awareness of menopause

Knowledge and awareness about menopause among women vary considerably across contexts. For example, a recent international study in Iceland found that “most women had limited knowledge prior to age 40” and >80 % had not received any menopause education.[1] In India, a study among post-menopausal women in Bhopal reported that only 32.72 % of the women had knowledge of menopausal symptoms, and only 4.54 % were aware of hormone therapy.[2] Another study in rural Telangana found mean knowledge scores of 6.8 ± 2.4 (out of 15), indicating substantial knowledge gaps. Across these studies, higher education and urban residence often correlated with better awareness, while rural, low-income or less-educated women lagged.

The sources of knowledge also merit attention. In the study of Iranian women, social networks and friends were the most commonly cited information sources, but many participants reported difficulties accessing accurate information.[3] The contemporary review of menopause education programmes underscores that knowledge improvement is feasible, but many programmes remain inconsistently reported.[4] The literature thus

suggests knowledge is a key pre-condition for informed action, but in many settings remains weak.

Theme B: Attitudes, perceptions and cultural beliefs

Women's attitudes and perceptions towards menopause influence how they interpret symptoms and whether they seek help. For instance, the international survey found that women who held more negative attitudes toward menopause reported greater symptom burden.[1] In Indian contexts, women often perceive menopause as a “loss of youth” (64.55 % in one study) or an end to sexual life (57.28 %).[2] These perceptions may affect self-esteem, help-seeking and social functioning. Cultural narratives often frame menopause as a private or feminine transition not to be publicly discussed, thereby reducing opportunities for open education and support.

Educational level also influenced attitudes: the Eritrean study among teachers found that structured health education improved attitude scores significantly.[5] Overall, the literature indicates that improving knowledge alone may not suffice unless attitudes and perceptions are also addressed.

Theme C: Health-seeking behaviour and help-seeking patterns

Health-seeking behaviour among mid-life women in menopause appears sub-optimal in many settings. For example, in a study from Aligarh (India), while 60.1 % of women reported somatic symptoms and 59.6 % urogenital symptoms, only a minority sought medical help — rural women often resorted to traditional/home-based measures.[6] A study in Hyderabad found that among rural women, 25.4 % did not seek any health care; among urban women, 14.7 % did not seek any care.[7] In Lucknow, only 42.7 % accessed health care for menopausal symptoms; 43 % believed they would “be fine with time”. [8] Internationally, information-seeking behaviour in Iran revealed only ~37 % of rural women sought professional care; knowledge score correlated with help-seeking ($r = 0.426$). [9] The patterns suggest that mid-life women often delay or avoid formal health services.

Theme D: Barriers and facilitators to seeking care in menopausal transition

Multiple barriers impede timely help-seeking. Across Indian studies, common reasons included: belief that menopause is “natural” and requires no intervention; cost/financial constraints; distance/transport issues; fear/shyness; lack of awareness of services; and preferring traditional practices. [7] In the rural Indian study, 35 % of women sought care, implying 65 % did not — a major gap.[10] The Iranian study identified the major barriers as lack of knowledge about information sources (51.2 %), financial constraints (64.5 %), and distance (58.7 %). Facilitators include higher education, urban residence, prior contact with health services, and targeted education programmes.

Theme E: Intervention/education programmes to enhance knowledge and awareness

There is growing evidence that structured educational interventions can improve knowledge and attitudes. For example, the Eritrean study among middle-age teachers found significant improvements in knowledge (from mean 12.3 to 17.3/22) and attitudes following an educational intervention.[5] The 2024 rapid review of menopause education programmes found that such programmes ($n = 39$) delivered in group settings improved

knowledge, symptoms, and quality of life, though intervention reporting was inconsistent. [4] These findings highlight that targeted, context-sensitive programmes hold potential to reduce gaps in awareness and help-seeking.

Methodology

This chapter outlines the research design, objectives, data sources, scope, and methodological framework adopted for the study on “Knowledge and Awareness of Menopause: Health-Seeking Patterns among Midlife Women.” Given the sensitivity and social silence surrounding menopause, this study adopted a secondary review method to synthesize existing national and international literature to identify patterns, gaps, and interventions concerning women’s awareness and health-seeking behaviour during midlife.

3.1. Aim of the Study

To assess the existing body of knowledge and evidence on menopause awareness and health-seeking patterns among midlife women and to identify key determinants, barriers, and facilitators that influence their health behaviour during menopausal transition.

3.2. Objectives of the Study

1. To review existing literature on women’s knowledge and awareness regarding menopause and related symptoms.
2. To examine health-seeking behaviour and coping patterns adopted by midlife women across diverse socio-cultural contexts.
3. To identify the barriers and facilitating factors influencing health-seeking and awareness.
4. To review successful intervention models and educational programmes promoting menopausal health.
5. To derive implications for social work, public health education, and community health interventions.

3.3. Study Design

This study adopts a secondary review (descriptive review) design, synthesising existing peer-reviewed journal articles, cross-sectional studies, and reviews related to knowledge/awareness of menopause and health-seeking patterns among mid-life women. The inclusion criteria were: studies published between 2010-2024, in English, covering mid-life or post-menopausal women (approx. aged 40-65), reporting either knowledge/awareness, attitudes, help-seeking behaviour, or intervention outcomes. Exclusion criteria included studies focusing exclusively on clinical trials of hormone treatment without behavioural or awareness dimensions, and non-English publications.

3.4. Sources of Data

Data were collected entirely from secondary sources including: Online Academic Databases: PubMed, Google Scholar, JSTOR, ResearchGate, ScienceDirect, and SpringerLink. Institutional and Government Reports: WHO, Indian Ministry of Health and Family Welfare, and National Institute for Health and Care Excellence (NICE) publications. Peer-reviewed Journals: BMC Women’s Health, International Journal of

Community Medicine and Public Health, Menopause: The Journal of The North American Menopause Society, and Archives of Women's Mental Health.

Data extraction captured author(s), year, country, sample size, setting (urban/rural), key variables (knowledge score, help-seeking rate, barriers), and main findings. Synthesis was done thematically along the five themes described above. Limitations of this review include: reliance on published studies (publication bias), heterogeneity of measures (knowledge scales differ across studies), and limited availability of longitudinal data. Because this is not a systematic meta-analysis, effect sizes were not pooled quantitatively.

3.5. Method of Data Collection

A systematic search strategy was employed using specific keywords and Boolean combinations, such as: "Menopause awareness," "midlife women," "knowledge," "health-seeking behaviour," "attitudes," "symptoms," "health interventions," and "India."

3.6. Data Analysis and Thematic Categorization

The analysis was carried out through thematic synthesis:

1. Each study was read and coded based on its major findings.
2. Common themes and patterns were identified.
3. Thematic areas were categorized as:
 - Knowledge and Awareness of Menopause
 - Attitudes and Perceptions
 - Health-Seeking Behaviour
 - Barriers and Facilitators
 - Interventions and Health Education Models
 - Results were tabulated and summarized qualitatively, highlighting similarities and differences across cultural contexts.

3.7. Scope of the Study

The study focuses on midlife women aged 40–65 years during peri- and post-menopausal transition. It covers both national and international literature, allowing comparative understanding across diverse societies. The review captures psychological, cultural, and health behavioural dimensions, contributing to multidisciplinary fields such as social work, psychology, and public health. It serves as a foundation for designing awareness and health education programs for women in community settings.

3.8. Expected Outcomes

- Comprehensive understanding of the current awareness and misconceptions about menopause.
- Identification of key determinants influencing help-seeking patterns.
- Synthesis of best practices for effective education and counselling models.
- Policy-level insights to integrate menopausal health into community and primary health frameworks.

3.9. Limitations of the Study

- The study is limited to secondary data and does not include primary field-level data or interviews.
- The review is restricted to English-language publications, which may exclude valuable regional studies.
- Variations in study design, population, and cultural context across reviewed literature may limit comparability.
- Publication bias could influence the overall conclusions, as unpublished or negative findings may not be included.

Summary of key findings

Across diverse settings, this review found that knowledge and awareness of menopause among mid-life women remains sub-optimal, especially in rural and low-income contexts. Attitudes and perceptions are often shaped by cultural beliefs (menopause as loss, end of sexual life, natural ageing) which can act as both predictors and barriers of help-seeking. Health-seeking behaviour is inconsistent; many women suffer somatic, psychological and urogenital symptoms but delay seeking professional care. Barriers are both individual (lack of knowledge, belief that symptoms will resolve) and structural (financial constraints, transport, limited health services). However, evidence for educational interventions suggests that context-sensitive programmes can improve knowledge and attitudes, potentially improving help-seeking.

Implications for mid-life women, especially in rural/semi-urban contexts

For mid-life women in rural/semi-urban settings, the findings emphasise the need for proactive awareness and education. Social work practitioners and local health workers should consider designing programmes that: (a) deliver age-appropriate information about menopause and its symptoms, (b) address cultural narratives (for example framing menopause as a natural transition rather than a disease), (c) promote accessible pathways to care (primary health centre, community health workers), and (d) encourage peer support and group discussions to reduce stigma.

Implications for healthcare providers, public health systems, and policy

Healthcare providers should proactively discuss menopausal issues with women in their 40s and 50s, rather than waiting for self-referral. Public health systems should integrate menopause into primary care and health promotion programmes, especially in low-resource settings. Policy initiatives could support community-based menopause education, subsidised screening and counselling, and improved training of primary health workers on menopause. The 2024 rapid review suggests that structured programmes can lead to improved outcomes; systems should support such interventions.[4]

Gaps in literature and directions for future research

Significant gaps include limited longitudinal tracking of changes in knowledge and behaviour over time; few studies in many low- and middle-income countries; heterogeneous measures of knowledge and seeking behaviour; and minimal intervention studies with rigorous design. Future research should explore: how digital health platforms and social media can be leveraged for menopause education; comparative studies of rural

vs urban differences; and rigorous evaluations of community-based interventions tailored to local cultural contexts.

Conclusion

This review of literature on “Knowledge and Awareness of Menopause: Health-Seeking Patterns among Mid-Life Women” underscores that despite the universality of menopause, significant knowledge gaps and help-seeking deficits persist—especially among women in rural, less-educated and low-income contexts. Women’s attitudes and cultural perceptions play a pivotal role in how they interpret and respond to menopausal symptoms. Health-seeking behaviour is often delayed or minimal, due to both individual and structural barriers. However, the emerging evidence that structured educational interventions can improve knowledge and help-seeking offers hope for change. For meaningful impact, multidisciplinary efforts are required—social work, public health, policy, and community engagement must converge to make menopause a visible and supported life stage. Empowering mid-life women with knowledge, challenging cultural taboos, and creating accessible health pathways will not only enhance their quality of life but also contribute to healthy ageing.

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Greens of Yesterday, Dreams of Tomorrow: Past Eco-Living Inspiring Future Sustainable Technologies

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Abstract

In the swirl of digital transformation, humanity is quietly rediscovering the wisdom of its past. As the world seeks balance between innovation and sustainability, the memories of eco-conscious living return as gentle reminders of what once felt natural and whole. These Psychological ties to the past do more than comfort, and they inspire change. This study explores nostalgia marketing as a driving force where emotion meets innovation, and the essence of yesterday breathes life into tomorrow's sustainable technologies. By transforming memories into meaningful design, it envisions a future where technology not only advances but also remembers, building progress rooted in the green spirit of the past.

This study reflects a modern evolution of nostalgic emotion, grounded in classical nostalgia psychology, affective attachment theory, and the Technology Acceptance (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) frameworks. The research explores how nostalgic emotions and memories of past technologies bridge traditional heritage with modern sustainable innovation, driving consumer adoption of environmentally friendly technological solutions. Using purposive sampling, data were collected from 112 participants in Chennai (2025) who had firsthand experience with India's digital evolution from the early computerization and internet era of the 1980s to the emergence of AI-driven platforms in the 2000s. The data were analyzed using SPSS software, employing correlation, regression, and structural equation modeling (SEM) to examine relationships among the variables. The findings emphasize how psychological heritage can inspire sustainable innovation for future generations.

Keywords: Childhood Brand Association (CBA), Brand Familiarity (BF), Retro Designs (RD), Technology Exploration (TE), Nostalgia Intensity (NI) and Sustainable Technology Adoption (STA)

Introduction

As the earth and planets continue to revolve around the sun, people are evolving into something new and sustainable. Innovations and technology are becoming the rising concern of a fast-growing future where the world still seeks something that provides emotional comfort and continues to long for the past to be embedded in the current generation. Earlier generations and societies lived with more ecological balance, and research has shown that people still long for their past warmth while also desiring current technological advancements that make life simpler and easier.

Several studies and facts have proven that nostalgia can be a powerful marketing force that includes nostalgia psychology, affective attachment theory, and the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) frameworks. Despite the growing awareness of sustainability and AI adoption, the environment continues to struggle to protect nature due to the high volume of toxic substance usage, which causes numerous health issues to humans and other living forms in nature. Introducing and innovating various technologies has not only benefitted a digitally proactive society but has also contributed to ecological degradation.

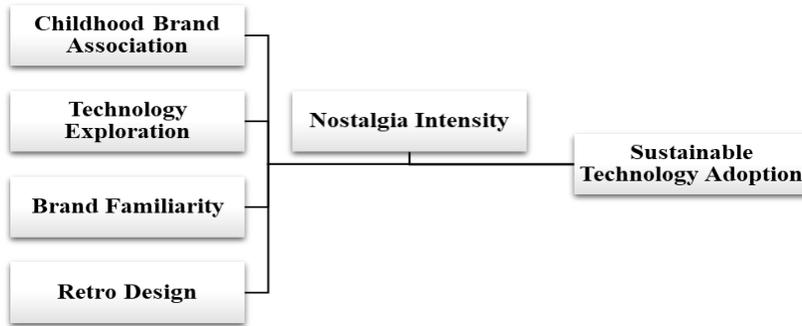
In this rapidly changing era, the intersection of emotional needs and technological growth creates unique challenges and opportunities. People do not just seek efficiency and innovation, there is a lasting desire to reconnect with bring the feelings of the past into modern green technologies, joining old memories with new progress. This study highlights the insightful view that nostalgia triggers can boost the practice of applying eco-sustainable technological products and platforms, which can be built using new and highly modernized technologies. The study seeks to suggest new strategies for marketers and future researchers as a key foundation for innovating technologies that align with sustainable practices.

If the positive influence of nostalgic memories can be effectively incorporated into the marketing and design of green technologies, it is possible to accelerate both acceptance and long-term engagement with eco-friendly innovations. Such an approach will not only cater to the emotional needs of the population but also contribute to the broader goals of ecological preservation and global sustainability.

Research objectives

1. To examine the relationship between nostalgia-driven factors and Nostalgia Intensity.
2. To determine the predictive impact of nostalgia-based variables on consumers' intention to adopt sustainable technologies.
3. To analyze the moderating effect of nostalgia intensity on the relationship between nostalgia-based factors and sustainable technology adoption.

Conceptual Framework



With the help of grounded theories, this study adapted and modified variables from previous research to suit the study requirements. These variables include:

1. Childhood Brand Association: Emotional connections to childhood brands that shape consumers' current attitudes and openness to adopting new technologies.
2. Brand Familiarity: Consumer recognition and trust in familiar brands that enhances comfort and willingness to adopt sustainable technological innovations.
3. Retro Designs: Nostalgic design elements that evoke past memories and encourage consumer acceptance of sustainable technologies.
4. Technology Exploration: Consumer openness and curiosity toward discovering new technologies that directly impacts their adaptability and adoption of sustainable solutions.
5. Nostalgia Intensity: The strength of nostalgic emotional responses that serves as an emotional catalyst driving engagement and motivation toward sustainable technology adoption.
6. Sustainable Technology Adoption: Consumer intention and actual behaviour toward embracing environmentally friendly technological innovations.

These variables collectively provide a comprehensive framework grounded in established theories to understand how nostalgic emotions and brand-related factors influence consumers' motivation and ability to adopt sustainable technologies.

Review of Literature

The journey of nostalgia research began with the foundational work of Holbrook and Schindler (1994) in their study, *Age, Sex, and Attitude Toward the Past as Predictors of Consumers' Aesthetic Tastes for Cultural Products*. This early research established nostalgia as more than just a sentimental recollection; it highlighted nostalgia as a key motivator influencing consumer preferences and brand attachment. It marked the inception of nostalgia marketing, where the emotional familiarity of past aesthetics became a powerful tool to deepen consumer engagement.

Building on this, Kessous and Roux (2008) in *A Semiotic Analysis of Nostalgia in Marketing* revealed how nostalgia functions symbolically, linking personal and collective memory to brand meaning, especially within heritage products. Around the same time, the work of Sierra and McQuitty (2007) in *Attitudes and Emotions as Determinants of Nostalgia Purchases: An Application of Social Identity Theory* further emphasized the

role of attitudes and emotional connections in nostalgic purchases, illustrating nostalgia's capacity to reinforce social identity and brand loyalty.

Moving beyond individual preferences, Wildschut, Sedikides, Arndt, and Routledge (2006) in *Nostalgia: Content, Triggers, Functions* and Wildschut et al. (2008) in *Nostalgia as a Repository of Social Bonding and Meaning* profoundly expanded our understanding. They showed that nostalgia not only evokes memories but also forges social bonds, fostering empathy, trust, and belonging mechanisms amplified by technological mediation.

The influence of sensory experience in nostalgia marketing was compellingly demonstrated by Barrett et al. (2010) in *Music-Evoked Nostalgia: Affect, Memory, and Personality*, where nostalgic music was shown to strengthen consumer-brand relationships by evoking positive emotions and close emotional ties.

As the field progressed into the 2010s, nostalgia's intersection with sustainability emerged. Guiot and Roux (2014) in *Sustainability through Second-Hand Consumption* and Cervellon et al. (2012) in *Something Old, Something Used: Determinants of Women's Purchase of Vintage Fashion vs Second-Hand Fashion* revealed how nostalgia and authenticity motivate environmentally conscious purchasing, blending emotional and ecological appeals.

Narrative and design-based approaches later highlighted this trend, as seen in Kumar and Kaushik (2021) in *Storytelling for Sustainable Consumption* and Choi and Kim (2021) in *Retro Packaging and Green Purchasing*. These studies demonstrated that nostalgic storytelling and retro packaging effectively support green purchasing behavior and eco-conscious brand acceptance.

Strähle and Müller (2020) in *Nostalgia in Sustainable Fashion Branding*, alongside Timothy and Boyd (2017) in *Sustainability and Heritage Tourism*, showed how nostalgic aesthetics increase perceived product value, promote sustainable fashion practices, and inspire long-term consumer loyalty through heritage tourism's emotional connection.

With the rise of digital technologies, nostalgia took on new dimensions. Recent contributions by Dang, Wildschut, and Sedikides (2024, 2025), such as *More Than a Barrier: Nostalgia Inhibits, but Also Promotes Favorable Responses to Innovative Technology* and *AI as a Companion or a Tool? Nostalgia Promotes Favorable Responses to AI with Relational Use*, along with Sedikides and Wildschut (2023) in *Induced Nostalgia Increases Optimism via Social Connectedness*, revealed nostalgia's dual role in shaping technology adoption. While sometimes triggering initial hesitance, nostalgia ultimately encourages openness, curiosity, social connectedness, and trust in AI and digital innovations.

Together, these studies chart nostalgia's evolution from a sentimental feeling into a strategic emotional resource that mediates our relationships with brands, sustainability, and technology. They illustrate how nostalgia fosters enduring social bonds, promotes

eco-friendly consumption, and eases the transition to embracing new technologies in an increasingly digital world.

Theoretical Integration of Sustainable Technology Adoption

Theoretical Foundation	Key Focus of Prior Studies	Identified Gaps	Extension through Sustainable Technologies
Technology Acceptance Model (TAM) (Davis, 1989) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003)	Analyzed acceptance and usage intentions based on perceived usefulness and ease of technology use. Provided strong predictive power for basic adoption behaviour.	Typically omitted emotional, nostalgic, and identity-driven influences, undervaluing the psychological motivation behind technology engagement, adaptability, and resistance to change.	Integrates nostalgia as a cognitive–emotional construct that bolsters digital literacy and willingness to explore sustainable/innovative products, framing nostalgia as a lever for strategic marketing and emotional engagement.
Brand Attachment and Equity (Park, MacInnis, Priester, Eisingerich, & Iacobucci, 2010)	Measured attachment's impact on brand loyalty, preference, and willingness to pay a premium, particularly in the context of iconic or heritage brands.	Rarely addressed the evolving role of brand attachment in digital, eco-friendly, or tech-enhanced consumer environments.	Suggests that nostalgia-fuelled attachment can be used to strengthen positive perceptions and trust in eco-innovative brands, encouraging sustainable consumption and habitual engagement with next-gen platforms.

Research Methodology

This study explores the impact of nostalgia on individuals' motivation and ability to adopt sustainable technologies, utilizing both primary and secondary data collected in 2025 from a purposive sample of 112 participants in Chennai. Participants possessed first-hand experience with India's digital evolution, from the early internet era of the 1980s to the rise of AI platforms in the 2000s, enabling rich comparative insights into how nostalgic feelings influence both emotional and cognitive dimensions of sustainable technology adoption. All research procedures adhered strictly to ethical standards, including informed consent and respondent confidentiality. A structured questionnaire was designed to assess nostalgic triggers that connect past and present sustainable technology experiences, factors affecting the intensity of nostalgia, and the role of nostalgic emotions in shaping engagement and readiness to adopt eco-sustainable technological solutions.

Research Design

Focus	Nostalgia and Sustainable Technology
Year/Location	2025, Chennai
Participants	112, purposive sample
Target Population	Lived India's digital growth
Data Sources	Primary and secondary
Analysis	SEM model, correlation and regression
Software used	MS-Excel, IBM SPSS Statistics 21, and IBM Amos Graphics
Ethics	Consent, voluntary, confidential

Hypotheses

The study employed both Null (H_0) and Alternate (H_1) hypotheses to examine the statistical significance of relationships between the selected variables, such as Childhood Brand Association, Technology Exploration, Brand Familiarity, Retro Design, Nostalgia Intensity and Sustainable Technology Adoption

Null Hypothesis (H_0): There is no statistically significant relationship or difference between the variables, such as Childhood Brand Association, Technology Exploration, Brand Familiarity, Retro Design, Nostalgia Intensity, and they do not significantly influence Sustainable Technology Adoption

Alternate Hypothesis (H_1): There exists a statistically significant relationship or difference between the variables, such as Childhood Brand Association, Technology Exploration, Brand Familiarity, Retro Design, Nostalgia Intensity, and they positively influence Sustainable Technology Adoption

Hypothesis testing was conducted using appropriate statistical tools, including correlation and regression analyses, to determine the level of significance. A p-value greater than 0.05 or 0.01 indicated acceptance of the null hypothesis, confirming no significant difference between the factors, whereas a p-value equal to or less than 0.05 or 0.01 led to the rejection of the null hypothesis and acceptance of the alternate hypothesis, signifying a statistically significant relationship between the variables.

Reliability Analysis

The study utilized SPSS Cronbach's Alpha to measure the internal reliability of the scale, confirming a high level of consistency in the responses.

Table No. 1

Cronbach's Alpha	No. of items
0.910	30

The study used SPSS Cronbach's Alpha to assess the internal reliability of 30 questionnaire items, yielding a high overall value of 0.910, which confirms excellent consistency and dependability for further analysis.

Results

The study presents the research objectives and key findings based on data from 112 respondents, illustrating how nostalgia impacts individuals' understanding, engagement, and confidence in adopting sustainable technologies.

Percentage Analysis

Table No. 2: Demographic Profile of the respondents

S.No	Particulars	Frequency	Percentage
1.	Age		
	Below 20	13	11.6%
	20 - 30	68	60.7%
	31 - 40	13	11.6%
	40 above	18	16.1%
2.	Gender		
	Male	53	47.3%
	Female	59	52.7%
3.	Profession		
	Student	37	33%
	Self employed	21	18.8%
	Employee	49	43.8%
	Homemaker	3	2.7%
	Unemployed	2	1.8%
4.	Family monthly income		
	Below Rs.10,000	6	5.4%
	Rs.10,000 - Rs. 30,000	29	25.9%
	Rs.30,001 - Rs. 50,000	41	36.6%
	Rs.50,001 - Rs. 70,000	12	10.7%
	Rs.70,000 above	24	21.4%
5.	Type of Family		
	Nuclear family	72	64.3%
	Joint family	24	21.4%
	Extended family	7	6.3%
	Others	9	8.0%

Table No. 3: Correlation

The next part of the analysis deals with the objective, to examine the relationship between nostalgia-driven factors and Nostalgia Intensity

S. No	Factors	'r' Value
1.	Childhood Brand Association and Nostalgia Intensity	0.511**
2.	Technology Exploration and Nostalgia Intensity	0.668**
3.	Brand Familiarity and Nostalgia Intensity	0.77**
4.	Retro Design and Nostalgia Intensity	0.90**

Source: primary data

Note: **Significant @ 1% Level

The next part of the analysis focuses on the objective, to determine the predictive influence of nostalgia-based variables on consumers' intention to adopt sustainable technologies.

Table No. 4: Regression

Model	Unstandardized Coefficient		c	t	sig
	B	Std. Error	Beta		
Constant	2.552	1.715		1.488	0.140
Childhood Brand Association	0.158	0.065	0.251	2.435	0.017*
Technology Exploration	0.233	0.86	0.241	2.711	0.08**
Brand Familiarity	0.205	0.108	0.195	1.893	0.061*
Retro Design	0.218	0.058	0.387	3.743	0.00**
Nostalgia Intensity	0.84	0.102	0.086	0.824	0.412

Source: primary data

Note: **Significant @ 1% Level; *Significant @ 5% Level

Dependent variable: Sustainable Technology Adoption

Model	R	R Square	F value	P value
1	0.769	0.592	30.741	0.00

Regression Equation

$$Y=(\text{CONSTANT}) 2.552+0.158X1+0.233X2+0.205X3+0.218X4+0.84X5$$

Where,

X1 = Childhood Brand Association

X2 = Technology exploration

X3 = Brand familiarity

X4 = Retro Design

X5 = Nostalgia Intensity

Fig. No. 1: Structural Equation Model

The next part of the analysis deals with the objective, to analyze the moderating effect of nostalgia intensity on the relationship between nostalgia-based factors and sustainable technology adoption.

Here hypothesis,

H₀: The hypothesized model has a good fit

H₁: The hypothesized model does not have a good fit

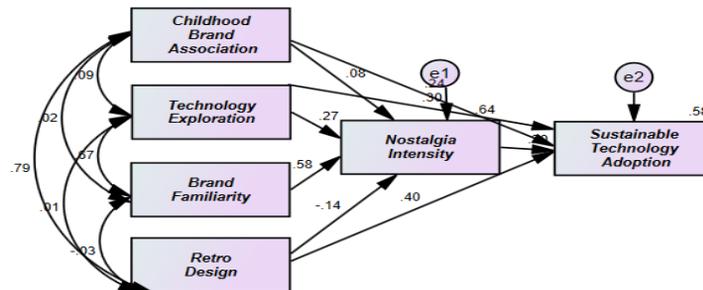


Fig.No.1

Table No. 5: Variables in the Structural Equation Model analysis

Variables			Unstandardised co-efficient (B)	S.E of B	Standardised co-efficient (Beta)	t value	P value
NI	←	CBA	0.267	0.76	0.271	3.514	<0.001**
NI	←	TE	0.622	0.82	0.582	7.598	<0.001**
NI	←	BF	0.054	0.60	0.085	0.902	0.0367
NI	←	RD	-0.082	0.054	-0.144	-1.536	0.124
STA	←	NI	0.197	0.082	0.200	2.396	0.017
STA	←	RD	0.226	0.058	0.400	3.924	<0.001**
STA	←	CBA	0.149	0.064	0.237	2.325	0.020
STA	←	TE	0.287	0.081	0.296	3.555	<0.001**

Source: primary data

Note: **Significant @ 1% Level

Table No. 6: Model Fit Summary of Structural Equation Model

Indices	Value	Suggested value
Chi-square value	3.691	-
DF	1	-
P value	0.055	> 0.05 (Hair et al., 1998)
Chi-square value/DF	3.691	< 5.00 (Hair et al., 1998)
GFI	0.989	> 0.90 (Hu and Bentler, 1999)
AGFI	0.974	> 0.90 (Hair et al. 2006)
NFI	0.991	> 0.90 (Hu and Bentler, 1999)
CFI	0.993	> 0.90 (Daire et al., 2008)

Discussion

This section provides interpretations for each analysis in relation to the specific research objectives, clarifying how the results contribute to understanding the role of Nostalgia and related factors in Sustainable technology adoption and consumer behaviour.

Correlation

- Objective I: to examine the relationship between nostalgia-driven factors and Nostalgia Intensity.

Table No. 3 shows that childhood brand association (0.511), technology exploration (0.668), brand familiarity (0.77), and retro design (0.90) are all strongly and significantly correlated with nostalgia intensity ($H_{01} - H_{04}$) at the 1% level, meaning these factors play a powerful role in evoking nostalgic feelings. This has important implications for promoting sustainable technology adoption: when brands and marketers use familiar, trusted brands, encourage exploration of new technologies, and incorporate retro design elements, they can harness the emotional pull of nostalgia to help people feel more comfortable, confident, and motivated to engage with sustainable innovations.

Regression

- Objective II: To determine the predictive influence of nostalgia-based variables on consumers' intention to adopt sustainable technologies.

The regression results in Table No. 4 demonstrate that childhood brand association, technology exploration, brand familiarity, and retro design all significantly predict sustainable technology adoption, with an overall model explaining 59.2% of the variance ($R^2 = 0.592$). Retro design (H_{08}), ($B = 0.218$, $p < 0.01$) and technology exploration (H_{06}), ($B = 0.233$, $p < 0.01$) show the strongest effects, followed by childhood brand association (H_{05}), ($B = 0.158$, $p = 0.017$, significant at 5%) and brand familiarity (H_{07}) ($B = 0.205$, $p = 0.061$, trending toward significance). These findings indicate that individuals who relate more strongly to retro design, actively explore technology, hold positive childhood brand memories, and trust familiar brands are more likely to adopt sustainable technologies.

Structural Equation Model

- Objective III: To analyze the moderating effect of nostalgia intensity on the relationship between nostalgia-based factors and sustainable technology adoption.

From Table No:5 above, the unstandardized coefficient of Nostalgia Intensity (NI) on Childhood Brand Association (CBA) is 0.267, representing the partial effect of CBA on NI while holding other path variables constant. The positive sign indicates that Nostalgia Intensity increases by 0.267 for every unit rise in Childhood Brand Association, and this effect is significant at the 1% level. Likewise, the unstandardised coefficient of NI on Brand Familiarity (BF) is 0.622, meaning NI increases by 0.622 for each unit increase in BF, and is highly significant. Technology Exploration (TE) also positively influences NI, with a coefficient of 0.271 and a significant t-value. The effect of Retro Design (RD) on NI is negative (-0.144), suggesting that higher RD lowers NI, although this result is not statistically significant. For Sustainable Technology Adoption (STA), NI (0.200), RD (0.400), CBA (0.237), and TE (0.296) all have positive effects, most strongly observed for Retro Design and Technology Exploration, with high significance at the 1% level.

Examining model fit (Table No. 6), the calculated chi-square value/DF is 3.691, which is below the recommended cutoff of 5.0, indicating a good model fit. The P-value is 0.055, just above 0.05, supporting that the hypothesized model fits the data well. Goodness of Fit Index (GFI = 0.989), Adjusted Goodness of Fit Index (AGFI = 0.974), Normed Fit Index (NFI = 0.991), and Comparative Fit Index (CFI = 0.993) all exceed the recommended minimum of 0.90, confirming excellent structural model fit. In summary, the most influential standardized coefficient in this model is Technology Exploration on NI (0.582), followed by RD on STA (0.400) and TE on STA (0.296). The results confirm that nostalgia-driven variables, especially technology exploration, brand familiarity, and retro design, significantly and positively contribute to sustainable technology adoption, and the structural equation model provides a robust statistical fit for explaining these relationships.

Conclusion

This study shows that feelings of nostalgia, such as memories of familiar brands from childhood, positive experiences with exploring technology, trust in known brands, and appreciation of retro design, greatly help people become comfortable with and willing to use sustainable new technologies. The research found that when these nostalgic connections are strong, people are more emotionally invested and open to learning about modern, eco-friendly innovations. Advanced techniques like correlation, regression analysis, and model fit statistics proved that these emotional connections aren't just sentimental; they make people more willing to embrace green innovations. The model fit indices (like Goodness of Fit Index and Comparative Fit Index) confirm that these relationships are statistically robust.

By tapping into people's fond memories and emotional heritage, marketers, educators, and leaders can make technological progress less intimidating and more welcoming. When companies design new tech tools or green solutions with design elements and brand stories that remind people of their past, society more readily accepts and adopts these innovations. Technology exploration and retro design are especially influential—when people encounter new gadgets that evoke the style or spirit of the past, they are more likely to support sustainable change. Nostalgia serves as a practical emotional bridge that helps people move confidently into the future without losing their sense of identity or emotional comfort, accelerating widespread adoption of green technologies, supporting individual well-being and community sustainability goals, and strengthening brand-customer bonds. While this research was limited to one city and a specific group, future studies should explore different locations and employ qualitative methods to deepen understanding. Overall, nostalgia is not merely a sentimental feeling; it is a strategic tool for building a greener, more connected society by turning unfamiliar technology into something friendlier and more meaningful for everyday people.

Scope and Limitations

This research looked at feelings of nostalgia and comfort with technology among people in Chennai, studying how familiarity and memories impact the acceptance of new sustainable options. It didn't specifically compare men and women, focusing more on people's emotional responses and their openness to innovation. As the study was based on a single city and used surveys at one point in time, results may not reflect wider cultural

or generational differences. The survey method also didn't provide detailed emotional stories or deeper perspectives that interviews might offer. For a fuller view, future research could use interviews and study people over time and across regions.

Suggestions for Future Research

Future studies should look at how nostalgia works for people of different ages and cultures, so we can better understand which memories or traditions help with technology acceptance worldwide. Researchers could also explore "eco-nostalgia," asking how happy memories can make people more interested in going green. Another area for study is using smart technology and virtual experiences like AI, augmented reality (AR), and virtual reality (VR) to create customized nostalgic emotions, making learning about new innovations more engaging. Lastly, focusing on technology literacy along with nostalgia could help increase awareness of how to use digital tools safely and responsibly, benefiting personal well-being and society.

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Impact of Sustainable Influencer Marketing Content on Consumers' Intention to Purchase Eco-Friendly Products

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Abstract

Marketing is one of the most important aspects of the business world these days. In the business sector, consumer engagement has become essential. Business has recently turned its attention to environmental sustainability as consumer preferences and understanding of the need to buy eco-friendly products have started to emerge in this period. This study examines consumers' knowledge of eco-friendly products and the critical role influencers play in swaying consumers' decisions to buy. Furthermore, companies are employing sustainable tactics to leverage influencers in order to maintain and grow their product offerings. To analyze the interaction between influencers and customers, a sample of 115 consumers was selected to investigate the factors influencing their choice of environmentally friendly products during purchases. This study assessed how social media influencers impact audience engagement and consumer behaviour during the purchasing process. To determine the results, weighted mean, correlation, anova methods were employed with the help of SPSS. The results showed that there is positive impact of influencer marketing with green purchase intention of customers. This will enable environmentally focused companies to design personalized marketing strategies for sustainability-minded consumers and contribute to the preservation of the global ecosystem through the promotion of eco-conscious behaviour.

Keywords: Influencers, eco-friendly products, green economy, consumer purchase, social media marketing

Introduction

In today's commercial world, green marketing is essential. Customers are now more aware of sustainability and have begun to favour eco-friendly goods and services. These goods and services are now a significant part of the industry, and businesses have begun to offer environmentally friendly goods. Even if the terms "green marketing" and "eco campaign" are not new, social media platforms have begun to revitalize them through influencers. These influencers, through their content and promotions, have started to focus on these aspects of creating environmentally friendly products. vital significance because research indicates that young consumers are more likely to connect with social media

influencers. In the realm of marketing, influencers have become increasingly important. Influencers are now being used by businesses to market their goods. Those that draw in their following and sway their purchasing decisions are known as influencers. Social media sites like Facebook, YouTube, and Instagram are beginning to be used in marketing to influence marketing. Influencers can influence their followers' purchasing decisions by sharing details about their lifestyles. Companies have now begun to put their strategies into practice by leveraging influencers as a tool to market and promote their goods. Green influencers are people who only advocate for environmentally sustainable items. Consumers today are prepared to purchase environmentally friendly goods. Because of this, businesses have begun producing sustainable and environmentally friendly goods and hiring influencers to promote them.

Green content advertising is a form of green promotion that aids companies in becoming more sustainable. One way to influence consumer intentions for product usage while also promoting environmental sustainability is through green advertising. Businesses are working to accomplish these goals in a variety of ways, including developing new sustainable products to take over new market segments, investing in cutting-edge technologies, achieving quality standards and certifications, improving their image and brand equity, and using production processes that are less detrimental to the environment. Researchers began examining the aspects that can influence consumers' decisions to buy sustainable products and the determinants of sustainable consumer behaviour. Purchase intention of the customers. By providing thoughtful, non judgmental guidance on pro-environmental conduct, these green influencers are powerful advocates for sustainable practices, particularly among younger audiences. Although they don't have to make sustainability their main priority, general influencers can still make a contribution by talking about sustainable practices.

Social media influencers are becoming more and more important in the decision-making process of consumers, according to research findings. See how influencers are viewed as more authentic than celebrities, which makes them more believable and aesthetically familiar. They choose things that they believe in, which boosts followers' trust and encourages them to buy. So, one of the most focused topics of current marketing study is the role of influencers in consumers' decisions to buy such items, especially in the organic and green economy.

Consumer purchasing intentions show a dual trend of traditional and digital buying preferences as we get to developing economies like India. Even if there remains a considerable desire to purchase goods from conventional brick-and-mortar establishments, particularly for everyday necessities, younger consumers are increasingly favouring internet shopping.

In the last three years, India has expanded by 30% because to elements like convenience and a large selection of options. In India, brand consideration is also changing as consumers seek out value-driven companies that provide high-quality goods at reasonable costs, which has a favourable effect on conversion rates.

Objectives

1. To assess the effectiveness of eco-campaigns and green content through influencer marketing in shaping customers' attitudes toward environmental friendly purchases.
2. To analyze the relationship between influencer marketing, eco-campaign effectiveness, green content quality, and customer purchase intention.
3. To examine variations in purchase intentions based on demographic factors and degrees of environmental awareness.
4. To analyze how sustainable influencer marketing content influences consumers' attitudes and intention to purchase eco-friendly products.

Research Methodology

This study is based on primary and secondary data. The primary data was collected from the people of Chennai. The questionnaire is distributed to 115 people in Chennai through Google form. The study employed a convenience and data analysis is done with simple percentage, mean, standard deviations and correlations method and Anova. SEM model has been implemented to test the study with the help of Amos software

Review of Literature

Gia Khuong An, Thi Thuy An NGO (2025), the study concentrated on Vietnamese Generation Z customers who have shown an interest in organic cosmetics and are active social media users. An online poll yielded 315 legitimate replies, which were disseminated across many social media channels to optimize reach and diversity of participants. In order to manage non-normal data distributions, a common problem in social science research, and to handle complex models with multiple constructs, the analysis was carried out using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS software. This emphasizes how important it is for firms to create social media strategies that highlight the value propositions and qualitative aspects of their products in order to establish their reputation and win over customers. Additionally, the study shows a substantial correlation between eWOM, purchasing intentions, perceived quality, and perceived value.

Syahribulan, Ela Eliyana, Rosmiati-Journal of Production, Operations Management and Economics (2025), According to the study, by building emotional bonds and trust, the use of green content in influencer marketing has a major impact on customer behavior and purchase decisions. Given that 55% of customers shown actual involvement, influencers that support sustainability might pique consumers' interest in eco-friendly items. Nonetheless, 45% showed signs of impulsivity and frequently stopped using products after a campaign. According to the research, influencer programs that incorporate relatable stories and instructional content can successfully increase long-term engagement and encourage sustainable consumption.

Shu Liu (2025) the purpose of this study is to examine the variables influencing customers' purchase intentions in the context of social media-based influencer marketing, while also exposing the underlying mechanisms using an integrated model. We empirically tested our suggested model using an online poll with 335 participants who had followed social media influencers (SMIs). The structural and measurement models were analyzed using PLS-SEM. According to the results, SMIs increase customers' fear of

missing out (FOMO) and help them build parasocial relationships with them, which in turn increases their intention to make a purchase, when they are viewed as reliable sources with high levels of competence, dependability, and homophily. The correlation between FOMO and purchase intention will also be reinforced when consumers feel a high degree of serendipity.

Abdulkader Dahhanab |Igor Arenkovc (2025), this study analysed with 420 valid responses from Syrian consumers were gathered through an online survey, and SPSS (version 22) and SPSS Amos (version 23) were used to analyze the data. Consumer purchase intention is statistically significantly impacted by the dimensions of green advertising, including consumer reactions to the companies and their products, cognitive and emotive responses to green advertising, and the ethical influence of green advertising. Furthermore, the link between the aspects of green advertising and purchase intentions is significantly moderated by subjective norms and perceived behavioral control. Furthermore, this association is somewhat mediated by attitudes toward green advertising; however, only two of the three aspects of green advertising that this study looked at showed a statistically significant mediation impact. The correlation and SEM model was used.

Jamid Ul Islam, George Thomas,Norah Ali Albishri Acta sychoogi (2024), this study adds to the body of literature by offering a solid foundation for comprehending the social mechanisms that collectively influence green consumption. The study provides managers with useful information that they can use to create focused marketing efforts, work with social media influencers, and use technology to increase openness and confidence in sustainable business practices. This study not only fills in gaps in the literature but also offers a framework for encouraging environmentally friendly consumer habits, which are crucial for tackling the world's environmental problems. In order to fill this knowledge vacuum, the current study examines how social influence and sustainability consciousness shape consumers' intentions to make green purchases by drawing on Social Identity Theory. Structural equation modelling was used to examine the data gathered from a survey of 406 patrons of high-end Saudi Arabian eateries.

Nilna Muna Ni Wayan Eka Mitariani Ni Luh Wayan Sayang Telagawathi (2024), the purpose of this study is to examine how influencer marketing affects Balinese customers' inclination to buy environmentally friendly goods and services, both directly and indirectly. Within this approach, it particularly examines the mediating functions of good emotions and the veracity of the information. This quantitative study design gathered information from 246 Balinese customers by a questionnaire, which was then analyzed using SEM AMOS. A structural study approach was used, and the results show that the reliability of the information and in this interaction, happy emotions play a critical role as mediators.

Khatesiree Sripoorthorn and Rattana Sittioum (2024), this study examines the moderating effect of social media influencer reputation on consumer green purchase behavior in relation to eco-labels and environmental concerns. The process macro for moderation analysis and structural equation modelling (SEM), two sophisticated statistical approaches, were used to evaluate the gathered data. In Bangkok, Thailand, 520

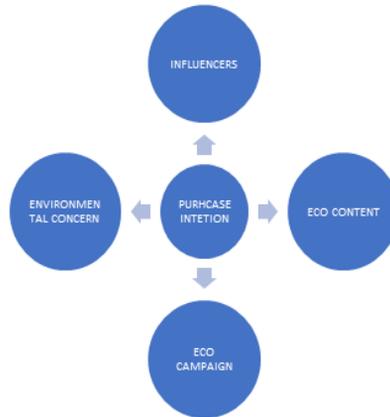
representative customers participated in a mall intercept study that was conducted in three major business districts. Advanced statistical methods, such as structural equation modeling (SEM) and the PROCESS macro for moderation analysis, were used to examine the gathered data. legitimacy of social media influencers as a moderator. The study looks at how eco-labels and environmental concern affect people's green perspectives using the Stimulus-Organism-Response paradigm.

Yuan-Fu Lee, Chen-Yueh Chen, Ya-Lun Chou and Yi-Hsiu Lin (2024), this study recruited 600 people who were either supporters of other teams or the Taipei Fubon Braves, a team in Taiwan's professional basketball league P. LEAGUE+. Following a confirmatory factor analysis, the hypotheses were tested using structural equation modelling. The findings show that all investigated pathways have positive associations. Although this moderating impact was not observed among the non-Taipei Fubon Braves followers, the connection between green WOM and purchase intention was mitigated by the green concern of the team's supporters. These discoveries bring fresh ideas to the marketing domain, making a significant contribution to both academic study and real-world implementations.

Silpia Agustina, Ali Amran² Srie Wijaya Kesuma Dewi, Yunika Komalasari, Rofily Putriyandari, Devi Yuniati Drajat (2023), this study examined how consumers' intentions to buy eco-friendly sanitary products under the Nadnad brand are influenced by their awareness of green products and influencer marketing. The basic data used in this study was obtained using a survey approach, which involved distributing questionnaires to 100 residents of Bandung, whose ages ranged from 15 to 35. A non-probability sampling strategy combined with purpose sampling approaches was used to choose the respondents. According to the study's findings, buying intention is positively and partially significantly impacted by awareness of green products, and purchase intention is positively and partially impacted by influencer marketing.

Rennan Carvalho dos Santos Marianny Jessica de Brito Silva · Marconi Freitas da Costa · Karen Batista¹ (2023), according to this study, consumers' intentions to buy vegan cosmetics are influenced by social media usage as well as the reliability of the source. It was acknowledged that digital influencers have the power to influence consumer intents, even when the items they promote don't align with the followers' lifestyle choices. In this study they also highlighted on non vegan follower may decide to use a vegan cosmetic after seeing an endorsement from a digital influencer. Additionally, they discovered that the legitimacy of the source affects social media use, meaning that the influencer also molds personal online conduct. It used Structural Equation Modeling to examine the correlations between the variables in 190 legitimate surveys. People over the age of eighteen from Brazil made up the research population since

Conceptual Framework



Analysis

Demographic Profile:

Demographic Variable	Category	Frequency (N)	Percentage
Gender	Male	18	16.2%
	Female	97	83.8%
Age	20-25	93	79.5%
	26-30	13	12%
	31-35	5	4.3%
	36-40	2	2.6%
	Above 40	2	1.7%
Education Qualification	Graduate	82	70.1%
	Post Graduate	13	11.1%
	Doctorate	6	5.1%
	Professional	3	2.6%
	Others	11	11.1%
Type of Family	Joint Family	31	26.5%
	Nuclear Family	81	69.2%
	Extended family	1	0.9%
	Others	2	3.4%
Annual Income	Less than 2lakhs	71	62.4%
	2lakhs-5lakhs	27	23.1%
	5lakhs-10lakhs	11	9.4%
	Above 10 lakhs	6	5.1%

In this study male respondents are made upto 16.2% and female respondents are made upto 83.8%. of the total. Highest qualification of the respondents were graduates with 70.1%,succeeded by Post graduated respondents with 11.1% and then respondents with doctorates upto 5.1% and 2.6% of professionals respectively.79.5% of the respondents belongs to the age group between(20-25)12% of the respondents belongs to the age category between(26-30)4.3% belongs to the age category between(31-35) and 2.6% of the respondents belongs to the age category between (36-40) 1.7%belongs to the age

category of 1.7%.The annual income of the respondents were about 62.4%category belongs to less than 2lakhs of income succeeded by 23.1%belongs to category to the income ranging from 2lakhs-5lakhs,9.4% belongs to category to the income from 5lakhs-10lakhs and 5.1%belongs to income above 10lakhs.69.2%of the respondents belongs to the category of nuclear family succeeded by 26.5%of the respondents belongs to the category of joint family,4.3%of the respondents belongs to the category of other type of family structure.

Findings

Table no:1: Factors influencing green purchase intention,” Environmental concern, Eco campaign”,” Green content” and “Influencers”

S. No	Statement	Weighted Mean	Standard Deviation
1.	Green Purchase intention	3.86	0.564
2.	Environmental concern	4.13	0.566
3.	Eco campaign	3.75	0.572
4.	Green content	3.68	0.645
5.	Influencers	3.57	0.658

From the above Table No:1 it can be inferred that the weighted mean scores of all the statements that measured the factors influencing green purchase intention, Environment concern, Eco campaign, green content, Influencers were above 3. This indicates that the respondents have moderately agreed that the influencers review is trustworthy and are useful to make their purchase decisions. Correlation method is used to measure to identify the relationship among the variables for testing the above objective

Table no. 2: Factors influencing green purchase intention,” Environmental concern, Eco campaign”,” Green content” and “Influencers Correlation						
		Green purchase intention	Environ mental concern	Eco campaign	Green content	influenc ers
Green purchase intention	Pearson Correlation	1	.416**	.600**	.375**	.323**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	115	115	115	115	115
Environmental concern	Pearson Correlation	.416**	1	.475**	.456**	.270**
	Sig. (2-tailed)	.000		.000	.000	.004
	N	115	115	115	115	115
Eco campaign	Pearson Correlation	.600**	.475**	1	.513**	.446**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	115	115	115	115	115

Green content	Pearson Correlation	.375**	.456**	.513**	1	.521**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	115	115	115	115	115
Influencers	Pearson Correlation	.323**	.270**	.446**	.521**	1
	Sig. (2-tailed)	.000	.004	.000	.000	
	N	115	115	115	115	115

From the above table it shows respondents perceptions are influenced by Values, Beliefs, Purchase decision and Interest. It is inferred that all the Independent variable (Environmental concern, Eco campaign, Green content and influencers) have positive relationship with dependent variable (Green purchase intentions). This shows that customers agree ethnicity, creditworthiness and trust of the influencers which helps them to make purchase decisions of the product and services and also it creates the interest among the customers to follow the influencers in social media who actively engage in quality of content.

Table no:3: Factors influencing green purchase intention,” Gender, Age, Education Qualification and Type of family”

ANOVA for Attributes and the use of digital platforms of fintech companies						
		Sum of squares	df	Mean square	F	Sig
Gender	Between Groups	1.014	1	1.014	3.243	.074
	Within Groups	35.335	113	.313		
	Total	36.349	114			
Age	Between Groups	1.236	4	.309	.968	.428
	Within Groups	35.114	110	.319		
	Total	36.349	114			
Annual Income	Between Groups	1.236	4	.309	.968	.428
	Within Groups	35.114	110	.319		
	Total	36.349	114			
Educational Qualification	Between Groups	.316	3	.105	.325	.807
	Within Groups	36.033	111	.325		
	Total	36.349	114			
Type of Family	Between Groups	.101	3	.034	.103	.958
	Within Groups	36.249	111	.327		
	Total	36.349	114			

Implications

From the above table The analysis indicates that there is no statistically significant difference in green purchase intention between the groups at the conventional 5% significance level. Nonetheless, the marginal significance ($p = .074$) suggests a weak

trend, implying that group membership may have some influence on purchase intention, though the effect is not conclusive. The analysis shows that gender does not have a statistically significant effect on green purchase intention at the conventional 5% level (since $p > 0.05$). This trend aligns with prior research indicating that women often display stronger environmental concern and are more likely to prefer sustainable products compared to men.

The one-way ANOVA results indicate that age does not significantly influence green purchase intention, $F = 0.968$, $p = .428$. This suggests that individuals across different age groups show similar levels of willingness to purchase eco-friendly products. A possible reason for the lack of significant differences is that environmental awareness has become widespread across generations, largely due to social media campaigns, educational initiatives, and increased availability of sustainable products.

The one-way ANOVA results indicate that education qualification does not significantly affect green purchase intention, $F = 0.968$, $p = .428$. This suggests that individuals with different educational backgrounds exhibit similar levels of willingness to purchase eco-friendly products. A possible explanation is that environmental awareness is now widely spread across society through media, influencer marketing, and public campaigns, making education level a less critical factor.

The one-way ANOVA results reveal that annual income does not have a significant effect on green purchase intention, $F = 0.325$, $p = .807$. This indicates that consumers across different income levels demonstrate similar intentions to purchase eco-friendly products. A possible reason is that environmental awareness and sustainable attitudes are influenced more by personal values and exposure to green campaigns rather than income level. Additionally, while income affects actual purchasing power, intentions to buy eco-friendly products may remain consistent across income groups.

The one-way ANOVA results show that type of family has no significant effect on green purchase intention, $F(3,111) = 0.103$, $p = .958$. This indicates that individuals from nuclear, joint, or extended families exhibit similar levels of willingness to buy eco-friendly products. A likely explanation is that green purchase intention is shaped more by personal attitudes, environmental concern, and exposure to sustainability campaigns rather than family structure.

Therefore, age and education qualification has more significant effect on green purchase intention which shows that customers prefer to consume high level of eco friendly products with the help of influencers through their green content and campaign.

SEM Model:

A "SEM model" can refer to two different concepts: Structural Equation Model or Scanning Electron Microscopy analysis. Structural Equation Modeling is a statistical method for testing complex relationships between variables, often used in the social sciences. Scanning Electron Microscopy is a technique that uses a focused electron beam to create high-resolution images of a sample's surface.

The variables used in structural equation model are:

Observed, endogenous variables

- Environmental concern
- Green content
- Influencers
- Eco campaign

Observed, exogenous variables

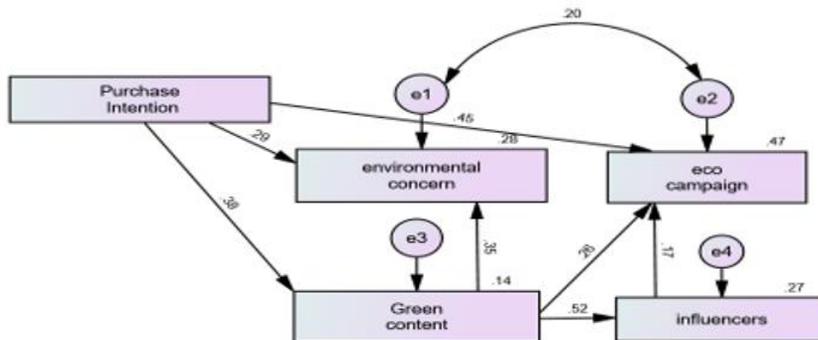
- Purchase intention

Unobserved, exogenous variables

- e1: Error term for Environmental concern
- e2: Error term for Eco campaign
- e3: Error term for Green content
- e4: Error term for Influencers

Hence number of variables in the SEM is

- Number of variables in your model: 9
- Number of observed variables: 5
- Number of unobserved variables: 4
- Number of exogenous variables: 5
- Number of endogenous variables: 4
- Number of distinct sample moments: 15
- Number of distinct parameters to be estimated: 13



Structured Equation Model on Purchase Intention of Customer Purchasing Eco Friendly Products

VARIABLES	Unobserved coefficient	S.E for B	Standardized coefficient	T value	P Value
Green Content<-- Purchase Intention	0.429	0.099	0.375	4.323	<0.001
Influencers<-Green Content	0.531	0.082	0.521	6.512	<0.001
Environmental concern<-Purchase	0.286	0.086	0.285	3.324	<0.001

Intention					
Eco campaign <--- Purchase intention	0.456	0.074	0.454	6.147	<0.001
Environmental concern<--- Green content	0.306	0.075	0.349	4.066	<0.001
Eco campaign <--- Green content	0.227	0.074	0.259	3.067	<0.001
Eco campaign <--- Influencers	0.146	0.068	0.170	2.160	<0.001

Implications

The unstandardized coefficients (B) indicate the direct amount of change in each dependent variable corresponding to a one-unit increase in the respective independent variable, while holding other variables constant. All coefficients in the present model are positive and statistically significant ($p < 0.001$), confirming that increases in one construct lead to proportional increases in the associated construct.

Specifically, a one-unit increase in Purchase Intention results in a 0.429-unit increase in Green Content, suggesting that consumers with higher intention to purchase eco-friendly products engage more actively with green messages. Similarly, a one-unit increase in Green Content leads to a 0.531-unit rise in Influencer effectiveness, implying that influencers who share strong environmental messages are perceived more positively. Purchase Intention also contributes a 0.286-unit increase in Environmental Concern and a 0.456-unit increase in Eco-Campaign effectiveness, showing that consumers with stronger purchase intentions are more environmentally conscious and responsive to eco-campaigns.

Furthermore, Green Content enhances Environmental Concern by 0.306 units and Eco-Campaign performance by 0.227 units, while Influencers exert a smaller yet positive impact (0.146 units) on Eco-Campaign outcomes. Collectively, these findings highlight the progressive and mutually reinforcing nature of sustainable marketing constructs.

The standardized coefficients (β) provide a scale-free comparison of the relative strength of each relationship. All path coefficients exceed 0.15 and are significant at $p < 0.001$, indicating meaningful positive associations among all variables.

Among all relationships, Green Content \rightarrow Influencers ($\beta = 0.521$) demonstrates the strongest effect, emphasizing that the credibility and influence of eco-oriented influencers depend heavily on the quality and authenticity of their green content. The path Purchase Intention \rightarrow Eco Campaign ($\beta = 0.454$) shows the next highest effect, suggesting that consumers with higher eco-purchase intention respond more positively to sustainability campaigns. Moderate relationships are found for Green Content \rightarrow Environmental Concern ($\beta = 0.349$) and Purchase Intention \rightarrow Green Content ($\beta = 0.375$), while Influencers \rightarrow Eco Campaign ($\beta = 0.170$) exhibits a smaller but statistically significant effect.

These results collectively confirm that green content acts as a central driver in the sustainable influencer marketing model—strengthening influencer credibility, raising environmental concern, and improving eco-campaign effectiveness. Purchase intention further enhances these linkages by motivating consumers toward environmentally responsible behavior.

Conclusion

Social media plays a very important for businesses and their promotional campaigns especially green campaigns and content. This has made it easier for consumers to switch from traditional to digital marketing. Over time, marketing has undergone changes. After individuals began to become used to it, a new perspective on marketing arose. Customers have made past purchases and product choices based on in-person inspections. The usage of social media platforms to interact with customers grew as technology developed. Because of this, influencers are now more prevalent in the market and play a crucial role in assisting customers in choosing eco-friendly products and services that suit their needs. This study also looks at how consumers perceive and comprehend the role that digital influencers play in meeting their needs and desires in choosing the eco-friendly products. Since the rise in of technology in the field of marketing, influencer marketing has begun to take off. People's expectations have been rising as a result of their tendency to adopt the opinions of those who affect them. These influencers have the power to affect consumers' purchasing decisions in a way that meets their requirements and preferences. Businesses have begun working with these influencers to market their goods and services, and as a result, consumers have begun to trust these figures, which has led to a sharp rise in sales. Customers' trust is increased by influencers' constant improvement and increased openness. As a result, these partnerships enable the businesses to differentiate themselves from rivals and conduct business more effectively.

Limitations of the Study

1. The study was conducted with only 115 respondents.
2. The sample is considered the respondents of Chennai.
3. Limitations of the questionnaire method are applicable to current study.

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Demographic Determinants of Social Networking Site Usage among Degree College Students in Bagalkot District

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Abstract

This research examines the demographic factors influencing social networking site (SNS) usage among degree college students in Bagalkot District, Karnataka. A cohort of 150 students, chosen through stratified random sampling based on gender, academic disciplines, and types of colleges, supplied data through a structured questionnaire. Descriptive and inferential statistical techniques, including Chi-square tests, t-tests, and ANOVA, were utilized to evaluate the relationships between demographic variables and social networking service utilization. The results indicate that gender, paternal occupation, family income, and type of college substantially affect the intensity and length of SNS interaction, whereas age and academic stream exhibit no significant influence. Male students from business or government employee families, higher-income homes, and attending aided universities demonstrated elevated levels of consumption. The findings highlight that socio-economic and institutional settings significantly influence students' digital activity, despite the ubiquity of social networking platforms in student life. The study underscores the benefits and challenges linked to SNS usage, highlighting the necessity for digital literacy programs and moderated online participation among students.

Keywords: Social Networking Site, Social Media Usage, Demographic Determinants and Socio-Economic Status.

Introduction

In the modern digital age, social networking sites (SNS) have become one of the most powerful platforms influencing communication, information dissemination, and social interaction. For young adults, especially college students, these platforms function as essential instruments for academic collaboration, social interaction, amusement, and self-expression. As internet access expands and affordable cellphones become widespread, students in semi-urban and rural areas are increasingly engaging in the digital environment.

For college students, the utilization of social networking sites transcends basic recreation and signifies underlying socio-demographic trends. Variables including age, gender, familial history, socio-economic status, and geographical location frequently influence the manner and rationale behind students' interactions with these platforms. Comprehending

these demographic factors is essential for educators, policymakers, and researchers, as it offers insights into students' digital behavior, learning opportunities, and potential issues such as distraction, digital divide, or cyber threats.

In Bagalkot District, characterized by a fusion of urban and rural socio-cultural environments, analyzing the demographic aspects of social networking site usage is particularly significant. The district's varied student demographic offers a valuable opportunity to examine how demographic factors affect the degree, intent, and trends of social networking site usage. This study enhances the literature on digital media and youth while providing practical implications for developing digital literacy programs, using technology in higher education, and fostering responsible online behavior among students.

Daimary (2020) conducted a comparative study on the influence of social media on students. The research indicates that social media exerts both beneficial and detrimental effects on students' lives. Natarajan (2020) conducted a study on social media networks and their utilization, focusing on students from Arts and Science colleges. The results indicate the frequency with which respondents utilize social media platforms such as WhatsApp, YouTube, and Facebook. Azuonwu (2020) examined the perceived impact of social media on the academic achievement of students in Rivers State, with implications for counseling. The findings indicate that a significant proportion of university students are addicted to social media. Against this backdrop, the researcher recommends that social media be utilized for the promotion of educational objectives, that social networking sites be expanded, and that new pages be established to increase academic engagement and mitigate low academic performance among students. This would facilitate a balance between students' social media use and academic pursuits.

Borgohain (2020) examined the influence of social media on students' academic performance. A comprehensive examination of the state universities in Assam. The study indicates that social media influences students' academic lives both positively and negatively. Nthala (2019) examined the influence of social media on behavioral changes among students in higher education institutions, focusing on a case study of students from chosen universities in Lusaka. The results indicate that the majority of respondents have access to gateways connecting them to social media platforms. They favor social media as a communication medium, recognize that much of the information disseminated on these platforms lacks credibility, and acknowledge that these platforms can influence their behavior both negatively and positively, contingent upon their usage. The study concludes that social media significantly influences students' behavior, demonstrating both good and negative effects.

Ariff, Nirmala, and Nandana (2019) conducted a study on students' preferences regarding social media. The results indicate that social media has become more convenient as it is a highly beneficial instrument that can enhance students' knowledge. Celestine and Nonyelum (2018) examined the influence of social media on students' academic achievement. The study demonstrates a significant correlation between time spent on social media and academic performance. The sort of social media activities in which students engage does not significantly affect their academic achievement. The study indicates that a student's gender does not influence social media usage and activity. Malik

and Narke (2018) examined the influence of social media on college students in Kashmir. The results indicate that the utilization of social media platforms has adversely impacted pupils' academic performance. There is an urgent necessity to acquaint children with the availability of alternative informational resources or products that can aid them intellectually.

This study aims to examine the demographic factors influencing social networking site usage among degree college students in Bagalkot District. This research examines the correlation between students' demographic traits and their social media engagement to elucidate the socio-cultural foundations of digital participation in a swiftly changing technical environment.

Research Methodology

The present study adopts a descriptive research design to examine the demographic determinants of social networking site (SNS) usage among degree college students in Bagalkot District. The study's target population consists of degree college students enrolled in different institutions within Bagalkot District. Students were chosen from both urban and rural colleges to guarantee representativeness. A stratified random sample technique was utilized, with strata determined by gender, academic stream (Arts, Science, Commerce, and Professional courses), and college location. A sample size of 150 students (to be specified according to your data) was deemed sufficient to derive significant conclusions. The research relies on primary data gathered using a standardized questionnaire distributed to the participants. The questionnaire aimed to gather data on demographic factors, frequency and duration of social networking service usage, preferred platforms, and usage reasons.

Data Analysis Tools

The collected data were organized and examined utilizing descriptive statistics (percentages, mean, standard deviation) to encapsulate trends in SNS usage. Inferential statistical methods, including the Chi-square test, t-test, and Analysis of Variance (ANOVA), were utilized to examine the correlation between demographic factors and social networking service usage, if applicable. Statistical analysis was conducted utilizing software like SPSS and MS Excel.

Result

Table 1: Demographic details of the participants

Gender	No. of Participants	Percent
Male	71	47.3
Female	79	52.7
Age		
19	42	28.0
20	44	29.3
21	57	38.0
22 & above	7	4.7
Father Occupation		
Govt. Employee	23	15.3
Private Employee	44	29.3
Business	62	41.3

Other, Home Maker	21	14.0
Monthly Family Income		
<Rs.20000	92	61.3
Rs.20001-30000	36	24.0
Above Rs.30000	22	14.7
Type of the college		
Govt.	41	27.3
Aided	109	72.7
Total	150	100.0

The sample consisted of 150 participants, exhibiting a somewhat balanced gender distribution—71 (47.3%) male and 79 (52.7%) female. The main age group among participants was 21 years, with 57 individuals (38%), followed by 20 years with 44 individuals (29.3%) and 19 years with 42 individuals (28%). A mere 7 individuals (4.7%) were aged 22 years or older. The major group of respondents, 62 (41.3%), hailed from business families, followed by 44 (29.3%) whose dads were employed in the private sector. Government employees included 23 individuals (15.3%), while the remaining 21 individuals (14%) were classified under the other/home maker group. A substantial percentage, 92 (61.3%), indicated a monthly family income of less than Rs. 20,000, while 36 (24%) reported an income ranging from Rs. 20,001 to 30,000, and merely 22 (14.7%) disclosed an income over Rs. 30,000. Ultimately, the majority of participants attended aided colleges, including 109 (72.7%), while 41 (27.3%) were enrolled in government colleges. This indicates that most respondents originated from lower-income, business-focused families, with a greater presence from supported institutions.

Table 2: Association between use of social media and demographic factors

Gender	Number of hours used the social media in a day			Total	Chi Square value	p value		
	1-3	3-6	> 6					
Male	27	40	4	71	6.126	0.047		
	40.3%	50.6%	100.0%	47.3%				
Female	40	39	0	79				
	59.7%	49.4%	0.0%	52.7%				
Age								
19	20	20	2	42			5.496	0.482
	29.9%	25.3%	50.0%	28.0%				
20	15	28	1	44				
	22.4%	35.4%	25.0%	29.3%				
21	27	29	1	57				
	40.3%	36.7%	25.0%	38.0%				
>22	5	2	0	7				
	7.5%	2.5%	0.0%	4.7%				
Father Occupation								
Govt. Employee	9	12	2	23	19.057	0.004		
	13.4%	15.2%	50.0%	15.3%				

Private Employee	25	19	0	44		
	37.3%	24.1%	0.0%	29.3%		
Business	18	42	2	62		
	26.9%	53.2%	50.0%	41.3%		
Other	15	6	0	21		
	22.4%	7.6%	0.0%	14.0%		
Monthly Family Income						
< Rs. 20000	41	49	2	92	18.214	0.001
	61.2%	62.0%	50.0%	61.3%		
Rs. 20001 to 30000	10	26	0	36		
	14.9%	32.9%	0.0%	24.0%		
Above Rs. 30000	16	4	2	22		
	23.9%	5.1%	50.0%	14.7%		
Type of the college						
Govt.	29	11	1	41	15.745	0.000
	43.3%	13.9%	25.0%	27.3%		
Aided	38	68	3	109		
	56.7%	86.1%	75.0%	72.7%		
Which Standard of studying now ?						
B.Com	13	21	2	36	11.53	0.173
	19.4%	26.6%	50.0%	24.0%		
BA	23	11	1	35		
	34.3%	13.9%	25.0%	23.3%		
BBA	9	13	1	23		
	13.4%	16.5%	25.0%	15.3%		
B.Sc.	10	17	0	27		
	14.9%	21.5%	0.0%	18.0%		
BCA	12	17	0	29		
	17.9%	21.5%	0.0%	19.3%		
Total	67	79	4	150		
	100.0%	100.0%	100.0%	100.0%		

The findings indicate that a greater percentage of females, 59.7%, utilized social media for 1–3 hours daily, whilst males shown a preference for extended usage, with 50.6% engaging for 3–6 hours and 40.3% for 1–3 hours. Notably, only males indicated utilizing social media for over six hours daily (5.6% of males). This suggests that males are more predisposed than females to engage in extended periods on social media. The Chi-Square test results indicate a significant link between gender and daily social media usage ($\chi^2 = 6.126$, $p = 0.047$).

While students aged 21 constituted the predominant user group (38.0%), followed by those aged 20 (29.3%) and 19 (28.0%), the variations among age categories lacked statistical significance. This indicates that social media usage is rather uniform among various age demographics of students. The chi-square test results reveal no significant

association between respondents' age and the amount of hours spent on social media daily ($\chi^2 = 5.496$, $p = 0.482$).

Students with fathers involved in business exhibited the highest rate of social media usage (41.3%), particularly within the 3–6 hours category (53.2%). Individuals from families of government employees exhibited a propensity for increased social media usage, with 50% dedicating over 6 hours daily to these platforms, albeit the total number was limited. Conversely, pupils from families of private employees and those with "other" employment backgrounds shown a greater propensity to utilize social media for shorter periods (1–3 hours). This discovery suggests that parental occupation, particularly in business-related fields, significantly impacts students' social media usage. The Chi-square test revealed a significant connection between father's work and social media usage ($\chi^2 = 19.057$, $p = 0.004$).

The bulk of students, at 61.3%, were from families with monthly incomes below ₹20,000, with most engaging in social media for 1–3 hours and 3–6 hours per day. Individuals from middle-income households (₹20,001–30,000) predominantly fell into the 3–6 hour usage category (32.9%), whereas students from higher-income families (above ₹30,000) exhibited a notable trend—50% reported engaging with social media for over 6 hours per day. This indicates that elevated family income may facilitate enhanced access to resources (such as smartphones and internet connectivity), thus augmenting the probability of extended social media engagement. The Chi-square test result indicates a highly significant correlation between monthly household income and social media usage ($\chi^2 = 18.214$, $p = 0.001$).

Students from aided colleges indicated significantly elevated levels of social media engagement, with 86.1% categorized within the 3–6 hours range. Conversely, students from government colleges had a higher propensity to engage with social media for brief intervals, with 43.3% utilizing it for 1–3 hours daily. This clearly indicates that the type of institution significantly influences social media habits, with supported college students exhibiting a greater propensity for extended usage. The Chi-Square test results demonstrate a highly significant correlation between college type and social media usage ($\chi^2 = 15.745$, $p = 0.000$).

B. Com students had a little greater inclination towards excessive usage, with 50% categorized in the >6 hours bracket; nonetheless, the overall distribution among various courses was not statistically significant. This suggests that the academic subject or field of study does not significantly affect the amount of time students engage with social media. The Chi-square test analysis indicates no significant correlation between course of study and social media usage ($\chi^2 = 11.53$, $p = 0.173$).

Table 3: mean difference of uses of social media using Student's t test

Gender	N	Mean	SD	t value	p value
Male	71	4.17	1.773	2.241	0.027
Female	79	3.53	1.708		
Type of the college					
Govt.	41	3.02	1.666	-3.582	0.000
Aided	109	4.14	1.708		

Male students had a greater mean consumption ($M = 4.17$, $SD = 1.77$) than female students ($M = 3.53$, $SD = 1.71$). The difference was statistically significant ($t = 2.241$, $p = 0.027$), indicating that males allocate greater time to social media usage.

Students from aided colleges had a much greater mean consumption ($M = 4.14$, $SD = 1.70$) than those from government colleges ($M = 3.02$, $SD = 1.67$). The disparity was statistically significant ($t = -3.582$, $p = 0.000$), indicating that supported college students allocate more time to social media. The findings of the independent t-test indicate that gender and college type significantly influence social media usage.

Table 4: mean difference of uses of social media using ANOVA

Age	N	Mean	SD	F value	p value
19	42	3.62	1.873	2.138	0.098
20	44	4.32	1.596		
21	57	3.74	1.727		
22 & Above	7	2.86	1.952		
Father occupation					
Govt. Employee	23	4.35	2.145	4.482	0.005
Private Employee	44	3.43	1.620		
Business	62	4.23	1.593		
Other, Home Maker	21	2.95	1.658		
Monthly family Income					
<Rs.20000	92	3.88	1.656	2.688	0.071
Rs.20001-30000	36	4.17	1.699		
Above Rs.30000	22	3.09	2.136		
Total	150	3.83	1.762		

A one-way ANOVA was performed to assess the influence of age, paternal occupation, and monthly household income on social media usage. The results indicated that no statistically significant difference existed in social media usage among all age groups ($F = 2.138$, $p = 0.098$), but students aged 20 years had the highest mean usage. A notable difference was detected ($F = 4.482$, $p = 0.005$). Students whose fathers employed in government ($M = 4.35$) or business ($M = 4.23$) exhibited more usage, whilst those from homemaker households reported the lowest mean usage ($M = 2.95$). The analysis revealed no statistically significant difference ($F = 2.688$, $p = 0.071$), but students from middle-income families (Rs. 20,001–30,000) exhibited a comparatively greater mean usage than both lower and higher-income groups.

ANOVA results indicate that paternal occupation strongly impacts social media usage, whereas age and income levels exhibit less statistical influence, despite descriptive trends suggesting modest variances.

Discussion

The results of this study offer significant insights into the demographic factors influencing social networking site (SNS) usage among degree college students in Bagalkot District.

The findings indicate that gender, paternal occupation, college type, and family income substantially affect the degree of social networking site usage, whereas age and academic stream exhibit weak correlations.

A notable gender disparity was observed, with male students dedicating more time to social networking sites than their female counterparts. This conclusion aligns with Celestine and Nonyelum (2018), who discovered that while gender does not directly affect the kind of social media activities, males frequently claim greater engagement in terms of time. Malik and Narke (2018) similarly indicated that social media usage among college students, especially males, adversely impacts academic performance due to prolonged engagement.

The occupation of the father proved to be a crucial factor influencing SNS usage, as students from homes of business and government employees shown greater engagement. This trend may be ascribed to enhanced access to resources, technological exposure, and comparatively adaptable socio-economic situations. These findings align with Azuonwu (2020), who highlighted that socio-economic and environmental factors significantly influence students' online behavior, especially in balancing academic and non-academic usage of social networking sites.

The research indicated that students from aided colleges exhibited greater social media usage than their counterparts from government institutions. This may result from variations in institutional culture, peer influence, or the accessibility of digital infrastructure. Natarajan (2020) similarly noted that the college atmosphere strongly influences the frequency and kind of social networking site usage among students, with aided and private institutions frequently cultivating more digitally active student populations.

Income levels, although not exhibiting a statistically significant difference in ANOVA, revealed a noteworthy trend—students from higher-income families were more inclined to engage in extended usage (exceeding 6 hours daily). This aligns with Borgohain (2020), who observed that economic background enhances access to gadgets and internet connectivity, consequently affecting the degree of SNS activity. Nonetheless, this perspective coincides with Daimary (2020), who warned that unrestricted access without intentional application may adversely impact student productivity and learning outcomes. Conversely, age and academic stream did not exert a substantial impact on SNS usage in this study. This indicates that social networking services have become an integral component of student life, transcending age groups and academic fields. This conclusion aligns with Nthala (2019), who emphasized that students from various demographic backgrounds predominantly utilize social networking sites for communication, enjoyment, and networking, suggesting that usage habits are becoming increasingly uniform among adolescent demographics.

The findings collectively affirm that specific socio-demographic factors—such as gender, family background, and institutional type—significantly influence SNS engagement; however, the pervasive incorporation of digital platforms has rendered social media an essential component of student life, largely irrespective of age or academic discipline.

This highlights the opportunities and problems presented by social networking sites, particularly in reconciling educational advantages with the risks of excessive use.

Conclusion

The research indicates that gender, paternal occupation, familial income, and college type substantially affect social networking site (SNS) usage among degree college students in Bagalkot District, although age and academic stream do not. Male students from business or government employee families, higher-income homes, and attending aided universities exhibited elevated levels of consumption. This suggests that socio-economic and institutional variables significantly influence online activity, whereas social networking sites have emerged as a ubiquitous element across many age groups and academic disciplines. In summary, although social networking sites provide avenues for education and social engagement, it is essential to encourage appropriate and balanced usage among students.

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Gendered Livelihoods and Indigenous Knowledge: Pathways to Climate Resilience in Melghat's Korku Communities

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Abstract

Tribal communities in India support their livelihoods through strong connections between nature, culture, and society. In Melghat, located in the Satpura ranges of Maharashtra, the Korku community shows how indigenous knowledge, daily labor, and ecological practices are closely linked. Women play a crucial role in these livelihoods through seed preservation, collecting forest products, shifting cultivation, and caregiving. However, their work often goes unnoticed in mainstream policy discussions, even though it is essential for household survival and community resilience.

This study uses qualitative insights from ethnography and participatory research to explore how gender roles and indigenous practices shape resilience strategies. Grounded in feminist and rights-based viewpoints, the paper asserts that women's knowledge systems offer important lessons for adapting to climate change and ensuring sustainability. The analysis places Korku women's experiences in the context of broader discussions on sustainable development and inclusive governance, connecting their practices to national goals like Viksit Bharat @ 2047.

The findings have policy implications for effectively implementing the Forest Rights Act (FRA) and the Panchayats (Extension to Scheduled Areas) Act (PESA). Acknowledging women's roles within these frameworks is vital for strengthening inclusive governance, climate action, and long-term sustainability. Overall, the paper shows that recognizing indigenous knowledge and empowering women are not only matters of justice; they are also essential steps toward creating resilient and sustainable futures for tribal communities like the Korku of Melghat.

Keywords: Gendered livelihoods; Korku community; Indigenous knowledge; Women's work; Climate resilience; Tribal development; Environmental sustainability; Inclusive governance; Viksit Bharat 2047; FRA; PESA; SDGs

Introduction

Melghat, located in the Satpura hills of Maharashtra, is one of central India's regions where tribal communities depend heavily on forests for their daily life. The Korku community, recognised as a ST, has traditionally lived through forest resources, shifting cultivation, diverse seeds, and shared community labour (Xaxa, 2014). In Melghat, nature, culture, and everyday work are closely linked. Within this setting, women play an

especially important role. They preserve local seeds, collect forest produce, prepare herbal remedies, take care of household nutrition, and do most of the unpaid work that helps families survive (Agarwal, 2010).

Even though women contribute so much, their ecological work often remains ignored in development discussions. Most studies on Melghat have focused on issues like malnutrition, food insecurity, and migration (Malekar, 2014). But these studies have rarely looked at how women's knowledge helps families cope with climate-related stress. This gap is important because Melghat is now facing increasing challenges such as irregular monsoons, crop losses, drying water sources, and forest decline. These changes directly impact the everyday lives and livelihoods of the Korku community (Government of Maharashtra, 2023).

For tribal communities, indigenous knowledge is not just a tradition, it is a practical and living way of understanding soil, seeds, forests, and seasonal changes. Researchers note that tribal women often have the most detailed knowledge of the environment because their daily responsibilities keep them closely connected to natural resources (Baviskar, 1995; Rao, 2019). In Melghat, Korku women continue to preserve drought-resistant millets like kodo and kutki, observe nature to predict local weather, and depend on forest foods during difficult periods. These practices act as natural coping strategies and help the community handle climate uncertainty.

This paper uses feminist and rights-based approaches to understand how gender, indigenous knowledge, and climate change come together in Melghat. Feminist scholars have shown that women's work is shaped by social norms and uneven access to resources (Agarwal, 1994). In tribal regions, these inequalities are further influenced by forest governance rules, conservation policies, and the implementation of laws like the Forest Rights Act (FRA) and the Panchayats (Extension to Scheduled Areas) Act (PESA) (Bijoy, 2008). Recognising the role of women is therefore essential for strengthening local governance and building climate-sensitive policies.

The national vision of Viksit Bharat @ 2047 stresses sustainability, inclusion, and the use of traditional knowledge alongside modern planning. At the same time, the growing use of artificial intelligence (AI) offers new ways to document indigenous practices, predict climate changes, support Gram Sabha planning, and monitor environmental shifts (NITI Aayog, 2021). For a region like Melghat, combining women's lived knowledge with AI-based climate tools can help create stronger and more grounded resilience strategies.

This paper points to the need for a deeper understanding of how gender and indigenous ecological knowledge shape everyday survival in Melghat. Strengthening climate resilience in this region requires acknowledging women's knowledge and labour as a central part of both community traditions and broader development and climate governance systems.

Review of Literature

Studies on tribal livelihoods show that Adivasi communities depend mainly on forests, traditional farming, and shared community work to survive. Researchers like Baviskar

(1995) and Padel and Das (2010) explain that tribes across India use forest foods, local seeds, and shifting cultivation as part of their daily life. The Korku community in Melghat follows similar practices and relies on forests, millets, and medicinal plants for food and health.

Many scholars also highlight the important role of women in these livelihood systems. Agarwal (2010) and Rao (2019) note that women save seeds, collect forest produce, prepare medicines, and look after food and nutrition at home. Because of these responsibilities, women develop a deep understanding of the environment. However, their work often goes unnoticed in development discussions.

Climate studies show that tribal regions are highly affected by changing weather patterns. Xaxa (2014) and recent government reports mention that irregular rainfall, crop failure, and water scarcity are becoming common in places like Melghat (Government of Maharashtra, 2023). In such conditions, indigenous knowledge becomes very important for coping with climate stress. International reports like IPCC (2014) and UNDP (2015) also state that local knowledge about seeds, forests, and seasonal changes helps communities adapt during difficult times.

Another part of the literature focuses on governance. Bijoy (2008) and Sarin (2018) discuss laws such as the Forest Rights Act (FRA) and PESA, which aim to protect the rights of tribal communities. But women often have limited participation in these decision-making spaces, which affects their ability to protect natural resources.

Overall, the literature provides useful information but also shows clear gaps. Very few studies focus specifically on Korku women or their ecological knowledge. There is also limited research on how their knowledge supports climate resilience in Melghat. Similarly, the use of modern tools like artificial intelligence (AI) to support indigenous knowledge is largely missing. These gaps show the need to study women's experience, knowledge, and everyday work more closely to understand how climate resilience can be strengthened.

Research Methodology

This study used a qualitative approach to understand how Korku women in Melghat manage their livelihoods, use local knowledge, and respond to climate changes. A qualitative method was suitable because it captured people's real-life experiences and everyday practices.

3.1 Research Design: The study followed an ethnographic and participatory design. Ethnography enabled the researcher to spend time in the village, observe daily work, and understand the community closely. Participatory methods allowed the researcher to learn directly from women and community members in their own words.

3.2 Participants and Sampling:

Participants were selected through purposive and snowball sampling. Only those involved in farming, forest work, seed saving, and household nutrition were included. The study involved, around 22 women (farmers, seed keepers, forest gatherers), Around 9 men

working in agriculture and forest activities, 6 elders and healers for cultural and historical knowledge. Women were the main focus because they handle most of the ecological and household responsibilities.

3.3 Study Area

The research took place in selected Korku villages called Didmada, Forest Malur, Chorakund, Bod and Nanduri in Melghat, a forested tribal area in the Satpura hills of Maharashtra. These villages were chosen because they face climate challenges such as irregular rainfall, crop loss, and water scarcity.

3.4 Data Collection Methods

Data were collected using several simple and interactive methods:

- Semi-structured interviews with women farmers and forest collectors
- Focus Group Discussions (FGDs) with groups of 6 to 8 people
- Participant observation during farming, forest visits, seed storage, and household activities
- Seasonal livelihood mapping to understand changes across the year
- Informal talks with elders, healers, and Gram Sabha members
- Field notes and a reflexive journal to record observations and reflections

These methods helped capture everyday realities and women's practical knowledge.

3.5 Data Analysis

The collected data were analyzed through thematic analysis. The researcher read the interviews and notes many times, identified common ideas, and grouped them into themes such as: women's ecological knowledge, climate stress, gendered labor, coping strategies, resource governance. To make the findings more reliable, information from interviews, FGDs, and observations was compared through triangulation.

3.6 Researcher Positionality

The researcher is a social work academic familiar with Melghat. This background helped in building trust and communicating with participants in a respectful and culturally sensitive way. Reflexive notes were written to reduce personal bias.

3.7 Ethical Considerations

Participants were informed about the purpose of the study. Voluntary consent was obtained before each interview and discussion. Identities were kept confidential, and cultural norms were respected throughout the fieldwork.

3.8 Limitations

This study has a few limitations. The fieldwork was done in only a few villages, so the findings may not reflect the experiences of all Korku families in Melghat. Many women had household work and childcare responsibilities, which sometimes reduced the time available for interviews. The study used only qualitative methods like interviews, group discussions, and observations, and it did not include long-term scientific climate data. So, climate-related points are based mainly on what people shared from their experiences. Reaching remote hamlets, language differences, and the rainy season also made data collection difficult at times. Digital literacy in the villages was low, which limited

discussions on how AI tools could be used. Even with these limitations, the study still gives a clear and meaningful picture of women’s daily challenges, traditional knowledge, and resilience in Melghat.

Findings & Discussion

4.1 Women as Ecological Knowledge Holders

The study showed that Korku women hold a great amount of ecological knowledge in Melghat. Because they work daily with seeds, soil, forests, and food, they understand their environment very closely. Earlier studies also note that tribal women often learn about nature through everyday tasks that keep them directly connected to forests and farms (Agarwal, 2010; Baviskar, 1995; Rao, 2019). Women shared how they carefully save drought-resistant millets like *kodo* and *kutki*, saying that these grains “survive even when the rains betray us.” They also spoke about reading natural signs to understand seasons. One woman explained, “we know the rain will be weak when mahua flowers fall too early.” Such observations show that women use traditional knowledge passed down through generations to guide their daily decisions. Their knowledge is not only practical but deeply rooted in cultural memory.

4.2 Gendered Climate Burdens

Climate change has increased the daily workload and stress on Korku women. With irregular rainfall, dry wells, and repeated crop losses, women now spend more time collecting water, gathering forest foods, and managing household needs. This reflects broader research showing that climate stress often increases women’s labour in rural and tribal regions (Agarwal, 1994; Rao, 2019). Many women described waking up before sunrise to fetch water. One woman said, “earlier we filled water in one hour; now half the morning goes in water alone.” This matches government reports showing rising water scarcity in Melghat (Government of Maharashtra, 2023). When crops fail, men usually migrate for wage labour, leaving women to manage farms, children, older family members, and household work by themselves. This makes the workload heavier and shows how climate stress falls more heavily on women.

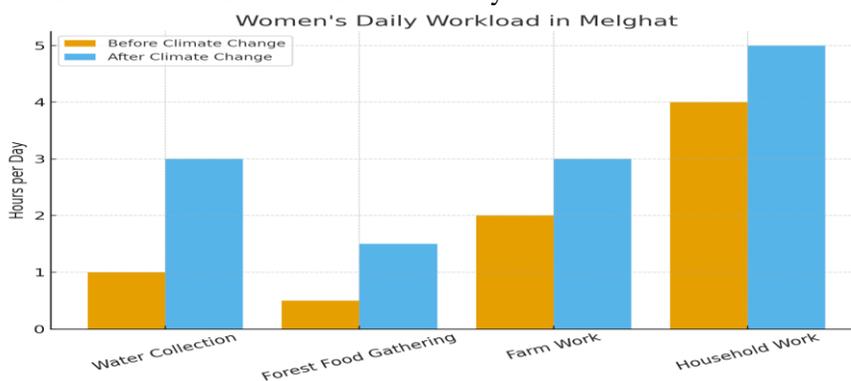


Figure 1. Changes in women’s daily workload before and after climate-related pressures in Melghat. The graph shows how time spent on water collection, forest food gathering, farm work, and household tasks has increased as rainfall patterns have become more unpredictable and men’s migration has risen. (Source: Fieldwork, 2024.)

4.3 Indigenous Resilience Strategies

Even with increasing challenges, women continue to use traditional and community-based strategies to cope with climate stress. These practices echo global research that recognises indigenous knowledge as an important tool for climate adaptation (IPCC, 2014; UNDP, 2015).

Women stored millets like *kodo* and *kutki* as “food for bad times,” helping the family survive during crop failures. They gathered forest foods such as mahua flowers, bamboo shoots, tubers, and wild greens, which gave them strength during lean months. To reduce risks, they mixed different seeds and protected traditional varieties. Women also predicted weather by observing nature. An elder explained, “if ants climb the walls, heavy rains are coming,” showing the use of traditional forecasting, similar to what earlier scholars described (Padel & Das, 2010). Another major strength was collective work. During difficult periods, women often worked together in fields and forests. One woman said, “when food becomes less, we go together no one returns empty-handed.” This togetherness helps the entire community stay resilient.

4.4 Climate Risks and Livelihood Insecurity

The study found that Melghat is facing serious climate-related risks that directly affect people’s livelihoods. These findings support earlier research claiming that Adivasi communities are highly vulnerable due to their close dependence on natural resources (Xaxa, 2014).

Women shared that late monsoons have disrupted sowing, and maize and millet crops have failed for “two or three years in a row.” Because of this, families had to depend more on forest foods or buy food from the market. Water scarcity has become severe, with streams drying earlier than before. Women also noticed changes in forest resources less mahua, fewer bamboo shoots, and fewer tendu leaves. This affected both household nutrition and seasonal income. Because of repeated crop failures, many men migrated for work, leaving women to manage everything at home. As one woman said, “when the harvest fails, the men leave... but everything here we must handle.”

These findings show how climate uncertainty increases insecurity, and how women face the greatest burden during such times.

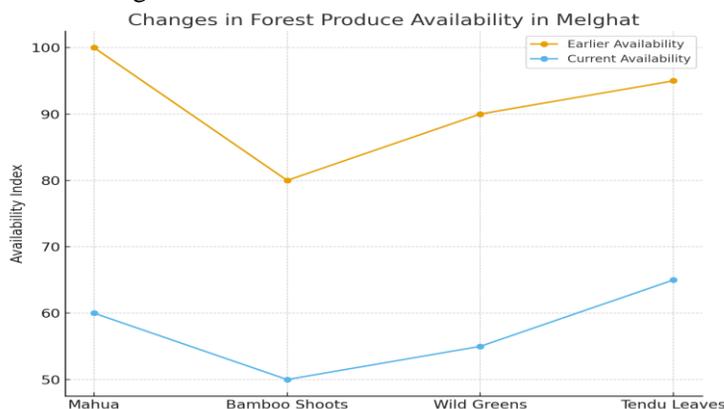


Figure 2. Decline in the availability of key forest foods collected by Korku households. Mahua flowers, bamboo shoots, wild greens, and tendu leaves have reduced in quantity

over recent years, reflecting the combined effects of erratic rainfall, forest degradation, and climate stress. (Fieldwork, 2024.)

AI Integration for Climate Resilience

As climate changes become more difficult to predict in Melghat, artificial intelligence (AI) offers new ways to support tribal communities. But for AI to be truly useful, it must fit the social and cultural reality of the Korku people, who are officially recognised as a Scheduled Tribe (ST). Melghat continues to experience lower literacy levels than the state average, especially among women, and many households have limited access to smartphones, stable internet, and digital tools (Xaxa, 2014). Because of this, AI needs to work with people's everyday practices and Indigenous knowledge, not replace them.

AI-based climate prediction can help communities plan better for delayed monsoons, crop stress, and water shortages. Research shows that AI improves the accuracy of rainfall and temperature forecasts (NITI Aayog, 2021; FAO, 2022). However, many Korku women may not read English or Marathi comfortably, so climate information must be shared through simple and familiar methods, voice messages, symbols, colour-coded alerts, or village notice boards. This is important because women play a major role in seed preparation, food storage, and everyday farming decisions. When women receive climate information in an easy-to-understand format, they can make stronger, safer decisions for their households.

AI can also help document Indigenous knowledge, which is one of Melghat's greatest strengths. Korku women possess valuable knowledge about seeds, soils, forest foods, and local weather indicators, yet most of this knowledge is oral. AI tools such as voice-to-text systems, plant image recognition, and audio-visual recording platforms can help preserve this knowledge for future generations. UNESCO (2021) highlights that Indigenous knowledge must be documented in ways that communities can access and control. For Melghat, this means using more pictures, audio, and short videos rather than long written text, which makes the information accessible even to women with low literacy.

Geographic Information Systems (GIS), supported by AI, can also help map local water sources, forest areas, soil types, and biodiversity. These tools can show changes in forest resources, such as declining mahua flowering or drying streams. But because digital maps can feel complicated, they need to be simplified for discussions in Gram Sabha meetings. When Korku women compare GIS maps with what they observe daily in the forest such as where edible tubers grow or which forest patch is healthy the planning becomes more grounded and accurate. This approach supports the rights-based spirit of PESA and FRA, which promote community-led governance (Bijoy, 2008).

AI can also support digital seed and food archives. Korku women preserve resilient crops like *kodo* and *kutki* and depend on wild foods such as mahua, bamboo shoots, forest greens, and tubers during difficult months. AI-based digital archives can store photographs, voice clips, and videos about these seeds and foods. UNDP (2019) notes that such digital archives help protect biodiversity and improve food security. When archives use visual and audio formats, they remain accessible for women who may not read or write easily.

AI can also play a role in improving local governance. Voice-based information systems, audio announcements, and easy-to-use mobile tools can help women receive climate updates, forest warnings, and information about government schemes. Many tribal women find it difficult to attend meetings due to long working hours, language barriers, or social norms. Technology can give them alternative ways to express concerns or share observations. Heeks and Shekhar (2019) argue that technology supports democratic participation only when it is designed around community needs. In Melghat, using Anganwadi centres, SHG meetings, village radios, and Gram Sabha notice boards can make AI-based messages more inclusive.

At the same time, there are challenges. The digital divide remains large, many families have basic phones, shared devices, or weak network connectivity. Most AI tools do not support the Korku language, which limits access. There is also the risk of outsiders collecting Indigenous knowledge without consent, raising concerns about fairness and community control (Kukutai & Taylor, 2016). AI systems may also give misleading results if they are trained on data from different ecological regions. Because of these issues, AI should be introduced slowly, with community guidance and consent, and always with respect for Indigenous data sovereignty.

Overall, AI can support climate resilience in Melghat, but only when it respects local realities, literacy limitations, cultural practices, language needs, and the central role of women. AI works best when it strengthens Indigenous knowledge rather than replacing it. A balanced approach where AI and women's ecological knowledge work together offers the strongest path for building long-term climate resilience in Melghat's forest-dependent villages. AI must complement women's existing ecological practices, not replace or override them.

Policy Implications

The findings from Melghat clearly show that women's daily work and knowledge are key to how families handle climate issues. Women know the forests, seeds, and seasonal patterns better than anyone else in their households. Because of this, we need important changes in policies like the Forest Rights Act (FRA), the PESA Act, local climate planning, and how women are included in village decisions.

The Forest Rights Act needs better implementation. Many women in Melghat depend on forest foods and firewood, but their names are often missing from forest land documents (Bijoy, 2008). When women are left out, their work and knowledge remain unseen. Studies show that when women have secure forest rights, they take better care of the land and resources (Agarwal, 2010). Adding women's names to land titles, helping Gram Sabhas complete the FRA process correctly, and recognizing women's roles in collecting seeds and forest foods can make the law more effective.

The PESA Act also requires attention. PESA gives Gram Sabhas the right to make decisions in tribal areas, but in many places, meetings do not happen regularly. Women struggle to attend due to their workload, social norms, or low literacy (Xaxa, 2014). If Gram Sabhas become stronger and more active, people can talk about water, forest use, agricultural changes, and climate issues more openly. It is also important to ensure that

women feel comfortable speaking in these meetings. Simple steps like using the local language, allocating separate time for women's concerns, or holding smaller group discussions can help.

Climate governance should involve the community more closely. Most climate-related plans come from outside, but local people experience climate change directly: late rain, drying streams, fewer forest foods, or crop failure. Their observations, combined with climate data or scientific information, can help create better village-level plans. NITI Aayog (2021) also highlights the need for local involvement in climate action. If Gram Sabhas, forest committees, women's groups, and youth groups work together, climate decisions will be more practical and better suited to the needs of Melghat.

Supporting women's leadership is another crucial area. Women take on extra work when the climate turns harsh walking long distances for water, gathering food during crop failures, and managing households when men migrate for labor. Yet, women are seldom consulted about their experiences during local decision-making. Studies show that when women participate in governance spaces, decisions become fairer and more sustainable (Agarwal, 1994; Rao, 2019). Creating opportunities for women to attend meetings, helping them learn digital tools or basic climate information, and encouraging them to speak can bring real change at the village level.

Overall, the policy lessons are straightforward. Better implementation of FRA and PESA, more inclusive climate planning, and stronger support for women's involvement can prepare Melghat better for climate challenges. When laws, local knowledge, and women's experiences come together, the community becomes stronger and more resilient.

Conclusion

Life in Melghat clearly shows how climate change affects daily life. For many Korcu families, especially women, these changes are seen in the fields, the forests, and even the kitchen. Women track seeds, notice changes in the weather, collect forest foods when crops fail, and manage most household tasks when times are tough. Their knowledge is straightforward, practical, and gained from years of living close to nature.

From this study, it is evident that the community's strength in dealing with climate stress comes from a blend of women's knowledge and traditional Indigenous practices. These practices such as saving drought-resistant seeds, using forest foods wisely, and observing seasonal changes help families handle difficult times. When traditional wisdom combines with modern tools like climate information, village mapping, or simple digital methods, the community has a better chance to prepare for the future. This mix of old and new offers a way toward greater climate resilience.

Policies like FRA and PESA can assist with this, but only if they function as intended. Forest rights must include women, Gram Sabhas must operate effectively, and local voices should be heard clearly. National goals such as Viksit Bharat @ 2047 also address sustainability and inclusion. What we see in Melghat suggests that achieving these goals will be easier if women's knowledge and tribal experience are considered in planning.

In simple terms, the future of climate resilience in Melghat depends on listening to the people who know the land best mainly women. Their daily experiences, understanding of

forests and seeds, and ability to quietly adjust to changing conditions are key to any long-term solution. Supporting this knowledge and ensuring women have a role in local decisions can help Melghat move toward a safer and more stable future. Therefore, sustainable development goals and Viksit Bharat @ 2047 will benefit greatly from recognising women's grassroots knowledge systems.

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The Influence of Social Media on Adolescents' Mental Health: A Social Work Perspective

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Abstract

The widespread rise of social media has significantly influenced adolescents' emotional, social, and behavioural development. This study explores the relationship between social media use and adolescents' mental health, focusing on stress, anxiety, and depression among 50 adolescents aged 16–19 years in Dharwad taluk, Karnataka. Using a descriptive mixed-methods design, the research collected data through a structured questionnaire and analysed it using percentage analyses, chi-square tests, and Cramér's V. The findings reveal that most adolescents do not perceive excessive social media use as a significant cause of stress or sleep disturbance. However, moderate associations were observed between geographical area and factors such as anxiety, relationship disturbances, academic performance, and access to support systems. Positive uses of social media—learning new skills, academic improvement, and social support—were more evident among urban adolescents. The study also found low engagement in structured mental-health practices, such as mindfulness and thought diaries, while offline hobbies and physical activities were preferred coping mechanisms. The research highlights the need for school-based digital literacy, parental guidance, and social-work interventions to promote balanced digital behaviour and improve adolescent well-being.

Keywords: Adolescents, Social Media, Mental Health, Stress, Anxiety, Depression, Cyberbullying, Social Work, Rural–Urban Differences, Digital Well-being.

Introduction

Adolescence, defined by the World Health Organisation as the age range of 10 to 19, is a developmental stage marked by significant biological, social, and psychological changes, leading to increased vulnerability to mental health issues among young people (World Health Organisation, 2023). In India, a considerable proportion of internet users belongs to the 12-29 age group, highlighting the close connection between young people's lives and digital media (Sharma & Vyas, 2022; cited in World Journal of..., 2023). Research conducted in Karnataka indicates that more than 95% of adolescents actively use social media platforms, raising significant concerns about the potential for excessive use and its

detrimental effects on their overall well-being (Nayak, 2022). Concurrently, scholarly investigations have established a distinct correlation between the overuse of social media or internet access and adverse psychological outcomes among adolescents in India, which encompass heightened levels of stress, anxiety, depression, disrupted sleep patterns, and diminished self-esteem (Perception, use of social media ..., 2023; Scrolling and Stress ..., 2025). For instance, a cross-sectional study conducted within a medical campus in Bengaluru identified a statistically significant inverse correlation between the duration of social media engagement and scores reflecting mental well-being (Lokesh et al., 2022). Furthermore, another investigation in rural southern Karnataka revealed that approximately 14.6% of high school students were identified as being at risk for internet addiction, with the utilisation of social media representing a crucial factor in this context (JCDR, 2024). Despite the accumulating body of evidence, there is a notable scarcity of scholarly inquiry into the effects of social media use on adolescents' mental health, particularly in the Dharwad district of Karnataka, a locale characterised by distinct socio-cultural and educational intricacies. In light of the escalating prevalence of mobile connectivity, digital penetration, and concerns surrounding adolescent mental health, there arises an imperative for localised research endeavours. From the perspective of social work, it is paramount to comprehend the patterns of social media usage, the mediating variables (including cyberbullying, sleep disturbances, and peer comparison), and the protective factors (such as familial oversight and school-based digital literacy initiatives) that are critical for the formulation of effective intervention strategies.

Accordingly, this study aims to investigate how social media use influences mental health outcomes—specifically stress, anxiety, and depression—among adolescents in Dharwad Taluq of Dharwad District, and to identify implications for social work practice, school-based programmes, and community-level preventive work in that setting.

Review of Literature

Despite the accumulation of substantial evidence, there exists a noticeable scarcity of empirical investigations concentrating on the ramifications of social media and smartphone utilisation, which have been consistently associated with heightened psychological distress, self-injurious behaviours, and suicidality among the adolescent population. Nonetheless, some studies also underscore the potential advantages of social support mechanisms and the accessibility of mental health resources (Khalaf et al., 2023). Shannon et al. (2023) executed a systematic review that unveiled persistent correlations between maladaptive social media usage and manifestations of depression, anxiety, and stress in youth, thereby accentuating the imperative for more uniform measurement methodologies across various studies. In a similar vein, an umbrella review of international research concluded that engagement with social media encompasses both hazards and prospects for adolescents' well-being, with outcomes contingent on the nature of engagement, the platform's design, and individual susceptibilities (ScienceDirect, 2023).

Extensive population-based investigations conducted by the Pew Research Centre (2023) reveal that a substantial majority of adolescents engage with the internet "almost constantly," underscoring the extensive exposure that positions social media as a crucial factor influencing teenagers' mental health. In alignment with these findings, prominent

health organizations, including the U.S. Department of Health and Human Services (2023) and the American Psychological Association (APA, 2023), have disseminated advisories that correlate social media engagement with various mental health issues such as anxiety, depression, sleep disturbances, and exposure to detrimental content, while advocating for the implementation of evidence-based strategies to enhance digital well-being.

Recent scholarly evaluations of problematic social media engagement characterise it as an emerging public health issue, delineating risk factors such as sleep disturbances, diminished self-esteem, and social comparison, as well as protective factors such as familial support and digital literacy (ScienceDirect, 2023). A comprehensive meta-analysis conducted by Frontiers (2023) underscored the pervasive incidence of cyberbullying on a global scale and its robust correlation with detrimental psychological consequences such as depression and suicidal ideation. Supplementing these findings, studies concentrated on India have recorded significant instances of cyberbullying and online harassment among adolescents, highlighting methodological discrepancies and an absence of longitudinal data (PMC, 2023).

National-level investigations into Indian studies, including recent epidemiological evaluations, have elucidated substantial correlations between problematic internet use and adverse mental health outcomes across both school and college populations, thereby highlighting the imperative for systematic interventions within educational and community contexts (Lippincott Journals, 2023). On a regional scale, a study conducted in the Dharwad district by Yamini (2022) identified escalating patterns of social media addiction among young adults, with excessive engagement associated with detrimental emotional and behavioural repercussions, thereby affirming the phenomenon's significance at the local level. In a similar vein, campus-centric assessments conducted in Bengaluru and rural southern Karnataka identified associations between the duration of social media engagement, diminished well-being, and manifestations of internet addiction (Indian Agricultural Research Journals, 2022).

International longitudinal and cross-sectional investigations suggest that, although the overall correlation between social media utilisation and mental health outcomes may be relatively modest, it remains substantial at the population level, with more pronounced effects observed for passive consumption than for active participation (ScienceDirect, 2023). Methodological evaluations further underscore the pressing necessity for standardised metrics of "problematic use," longitudinal research frameworks, and an examination of underlying mechanisms such as sleep disturbances, cybervictimization, and social comparison (ScienceDirect, 2023). Recommendations from international organisations for policy and practice stress the importance of school-based digital literacy initiatives, parental engagement, screening for cyberbullying, and community awareness led by social work as vital strategies for prevention and early intervention (HHS, 2023). Overall, the reviewed literature establishes three key themes: (a) the high degree of adolescent exposure to social media, (b) the consistent association between problematic use and deteriorating mental health, and (c) a significant gap in localized and intervention-oriented studies, particularly in districts such as Dharwad, Karnataka. These gaps justify the present research, which adopts a social work perspective to explore

adolescents' mental health challenges and identify preventive and promotive strategies within the local context.

Research Gap

There is a wealth of data in the literature at the international, national, and state levels that connects teenage usage of social media to mental health problems such as stress, anxiety, and depression. However, social work viewpoints and community-based interventions have received little attention in these studies, which have mainly concentrated on clinical or psychological aspects. Furthermore, a large portion of Indian research is still focused on urban areas, ignoring teenagers in rural areas who have distinct access to mental health facilities, family supervision, and digital exposure patterns. Research on the benefits of social media use, such as self-expression, awareness-raising, and peer support, also yields mixed results.

Despite rising smartphone penetration and youth participation in social media, relatively few empirical studies have been conducted locally in Karnataka's Dharwad area. Studies comparing the effects of social media in rural and urban areas are scarce, and little is known about how social work practices can reduce risks while improving digital well-being. Thus, by combining psychological, social, and intervention-oriented viewpoints to comprehend teenagers' mental health in a localised setting, this study closes a significant gap.

Statement of the Problem

Adolescence is a crucial developmental period characterised by identity construction, social exploration, and emotional instability. Social media's explosive growth has had a significant impact on how teenagers engage, communicate, and view themselves. Social media has been linked to higher levels of stress, anxiety, depression, sleep disruptions, and cyberbullying, even while it also provides opportunities for learning, self-expression, and social support.

Adolescents in India are increasingly exposed to digital media without sufficient awareness or coping skills to manage its psychological impact, especially in semi-urban and rural districts like Dharwad (Karnataka). The situation is made worse by the lack of organised mental health programs and the poor integration of social work treatments in communities and schools. Given these difficulties, it is imperative to examine how social media use affects adolescents' mental health, contrast its advantages and disadvantages in rural and urban environments, and investigate the possible contribution of social work to mental health promotion.

Thus, the present study seeks to understand the dual nature of social media's influence on adolescents' mental health and to identify strategies for social workers to foster resilience, responsible digital engagement, and psychological well-being among young people in Dharwad district.

Significance of the Study

This study is important because it looks at how social media in the Dharwad area of Karnataka affects teenagers' mental health, including stress, anxiety, and depression. It offers localised data to comprehend social media's advantages and disadvantages in both

rural and urban environments. The results will aid in the development of successful mental health interventions by social workers, educators, and legislators. The study encourages balanced digital awareness by emphasising social media's dual role as a source of psychological risk and support. It advances scholarly understanding of teenage psychology and digital behaviour in Indian settings. Furthermore, it emphasises the vital role of social work in preventive mental health care, digital literacy, and resilience building. The results may guide schools, families, and community organisations in implementing practical social work-based strategies for adolescent well-being.

Research Methodology

Objectives

1. To analyse adolescents' mental health issues, particularly stress, anxiety, and depression, related to social media use.
2. To assess and compare social media's negative and positive effects on adolescents' mental health across rural and urban communities.
3. To explore the role of social work interventions in promoting mental well-being among adolescents.

Hypotheses

- H_{01} (Null Hypothesis):
There is no significant relationship between social media use and adolescents' mental health issues, such as stress, anxiety, and depression.
- H_{02} (Null Hypothesis):
Social work interventions have no significant impact on adolescents' mental well-being when they use social media.

1. Research Design

The current study analyses teenage mental health problems related to social media use using a descriptive research design. To fully grasp the scope and complexity of the issue, it uses both quantitative and qualitative methods. While the qualitative insights aid in the interpretation of teenagers' attitudes and experiences about social media, the quantitative component concentrates on assessing stress, anxiety, and depression levels using standardised scales. Without changing any factors, the study's descriptive design allows for a thorough comprehension of the current mental health issues (Kothari, 2014; Creswell, 2018).

2. Study Area and Population

The current study analyses teenage mental health problems related to social media use using a descriptive research design. To fully grasp the scope and complexity of the issue, it uses both quantitative and qualitative methods. While the qualitative insights aid in the interpretation of teenagers' attitudes and experiences about social media, the quantitative component concentrates on assessing stress, anxiety, and depression levels using standardised scales. Without changing any factors, the study's descriptive design allows for a thorough comprehension of the current mental health issues (Kothari, 2014; Creswell, 2018).

3. Sample Size and Sampling Method

A total of 50 respondents were selected for this study, comprising 35 adolescents from urban areas (one institution) and 15 from rural areas (one institution) in Dharwad taluk. I

have taken a proportionate random sample of 50 respondents to ensure that all participants were active social media users within the target age group. This sampling approach was suitable for identifying adolescents who could meaningfully contribute to understanding the relationship between social media use and mental health.

Inclusion criteria

- The study is only related to the Dharwad taluk of Dharwad district.
- Respondents aged 16-19 years only included in this study.
- Only social media users were included in this study.
- Only those who are interested in participating are included in this study.

4. Sources of Data

Both primary and secondary data served as the foundation of the study.

- Standardised scales and structured questionnaires were used to gather primary data from respondents directly.
- Published journals, books, government publications, internet databases, and earlier research on teenage mental health and social media use were the sources of secondary data.

5. Tools of Data Collection

A structured questionnaire was used as the primary data collection tool. The questionnaire included three sections:

- Socio-demographic profile of respondents,
- Social media usage pattern, and
- Social Media's Positive and Negative Influence.

6. Data Analysis

The collected data were coded, tabulated, and analysed using appropriate statistical methods, including percentage analysis, mean, standard deviation, and correlation to identify relationships between social media use and mental health variables. The chi-square test has been used to assess the significance of positive and negative associations between social media use and adolescents' mental health. Cramér's V test has been applied to assess the strength of the association between social media use and adolescents' mental health. Data interpretation was carried out using both quantitative summaries and qualitative observations to ensure a comprehensive understanding of the results. The analysis was supported by SPSS (Version 23) for computation and presentation.

7. Ethical Considerations

Ethical principles were scrupulously maintained throughout the study process. Informed consent was obtained from all participants before giving the questionnaires. Prior to gathering data, the researcher also received formal approval from the college administration. No identifying information was recorded, and participants were guaranteed anonymity and confidentiality. In compliance with ethical research norms, all data were utilised exclusively for academic reasons, protecting the participants' privacy and dignity (Creswell, 2018).

8. Scope of the Study

The study focuses on teenagers living in Dharwad taluk's rural and urban areas who are between the ages of 16 and 19. It seeks to evaluate how social media use affects mental health and investigate how social work interventions could support teenage wellbeing. The study's results should help educators, social workers, and legislators who work with young people in comparable sociocultural contexts.

9. Limitations of the Study

Despite these limitations, the study offers important empirical insights into an understudied area in the Dharwad district. It is limited to a small sample of 50 respondents, which may limit the generalizability of the findings; data were collected via self-reported questionnaires, which may introduce response bias; and the cross-sectional design captures adolescents' mental health status at a single point in time without accounting for long-term behavioural changes.

Data Analysis and Interpretation

Table 1: Demographic Profile of the Respondents

Demographic Profile		Frequency	Percent	N
Age (in years)	16	1	2.0	50
	17	22	44.0	
	18	26	52.0	
	19	1	2.0	
Gender	Male	22	44.0	50
	Female	28	56.0	
Education Level	PUC	50	100.0	50
Geographical Area	Rural	15	30.0	50
	Urban	35	70.0	
Family Monthly Income	Less than 10,000 10,000	27	54.0	50
	10,001 - 50,000	15	30.0	
	50,001 - 100,000	6	12.0	
	More than 1,00,000 1,00,000	2	4.0	
Parents Occupation	Agriculture	29	58.0	50
	Corporate sector	4	8.0	
	Government sector	5	10.0	
	Daily wage worker	7	14.0	
	Own Business	3	6.0	
	Other	2	4.0	

Source: Field Survey, 2025

The demographic profile of the 50 adolescent respondents reveals that most are 18 years old (52%), followed by 17 years (44%). Very few are aged 16 or 19. The sample includes 56% females and 44% males, and all participants are studying at the PUC level. Regarding where they live, most respondents (70%) are from urban areas, while 30% are

from rural areas. Family monthly income data shows that more than half of the respondents (54%) come from families earning less than ₹10,000. Meanwhile, 30% earn between ₹10,001 and ₹50,000, and only a small number earn above ₹50,000. Looking at parents' occupations, a majority (58%) work in agriculture, followed by daily wage workers (14%), government employees (10%), corporate employees (8%), business owners (6%), and others (4%). Overall, the demographic data indicate that most respondents are older adolescents from urban, lower-income families engaged in agriculture and pursuing PUC education.

Table 2 indicates the Opinion of Respondents on social media usage

Factor	Yes		No	
	Fr	%	Fr	%
Excessive social media use increases your stress and anxiety levels	17	34	33	66
Excessive social media use negatively affects your sleep patterns	9	18	41	82

Source: Field Survey, 2025

The results in Table 2 indicate that most respondents do not see social media as a significant source of stress or sleep issues. Only 34% of adolescents said that spending too much time on social media increases their stress and anxiety. In contrast, a much larger group, 66%, disagreed with this view. Similarly, just 18% agreed that heavy social media use harms their sleep, while 82% said it does not. Overall, the findings suggest that most adolescents in the sample believe that excessive social media use does not significantly impact their stress levels or sleep quality.

Social Media's Negative Effect on Adolescents' Mental Health Across Rural and Urban Communities

Social media's adverse effect on adolescents' mental health	Geographical Area	
	Rural	Urban
1. Social-media use sometimes makes me feel anxious or stressed.		
2. I frequently compare myself with others on social media.		
3. Social media usage has negatively impacted my relationships with family and friends.		
4. Spending too much time on social media is affecting my sleep quality.		

Table 3 presents the respondents' opinions on the Negative Effects of social media on adolescents' Mental Health.

		1. Social-media use sometimes makes me feel anxious or stressed.					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Geographical Area	Urban	3	4	7	17	4	35
	Rural	1	3	7	4	0	15
Total		4	7	14	21	4	50
		2. I frequently compare myself with others on social media.					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Geographical Area	Urban	9	13	4	8	1	35
	Rural	6	2	3	3	1	15
Total		15	15	7	11	2	50
		3. Social media usage has negatively impacted my relationships with family and friends.					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Geographical Area	Urban	6	9	8	11	1	35
	Rural	2	9	3	1	0	15
Total		8	18	11	12	1	50
		4. Spending too much time on social media is affecting my sleep quality.					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Geographical Area	Urban	7	7	6	10	5	35
	Rural	3	3	5	4	0	15
Total		10	10	11	14	5	50

Source: Field Survey, 2025

$H_{0,1}$: There is no significant association between geographical area and level of anxiety or stress caused by social media.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided) p-value
Pearson Chi-Square	6.179	4	.186
Likelihood Ratio	7.169	4	.127
Linear-by-Linear Association	2.250	1	.134
N of Valid Cases	50		

The chi-square test examined whether geographical area and the level of anxiety or stress caused by social media are associated. The Pearson Chi-Square value is $\chi^2 = 6.179$ with $df = 4$ and a p-value of 0.186. Since $p > 0.05$, we accept H_0 , indicating that there is no

statistically significant association between geographical area and anxiety/stress levels. This means that differences in anxiety or stress caused by social media do not vary significantly across the sample of 50 respondents.

Cramer's V Effect Size for Checking the Social media's adverse effect on adolescents' mental health across rural and urban communities

Results and Discussion of Cramer's V Effect Size

Negative Influence of Social Media	Cramer's V	Strength of Association
1. Anxiety/Stress	0.352	Moderate
2. Comparison with others	0.271	Small
3. Relationships affected	0.365	Moderate
4. Sleep affected	0.261	Small

The Cramer's V value for the relationship between geographical area and anxiety or stress from social media is $V = 0.352$, which shows a moderate level of association. This means that the extent to which adolescents feel anxious or stressed about social media differs significantly between rural and urban communities. While the effect is not strong, this moderate association suggests that geographical context plays a noticeable role in shaping stress or anxiety levels linked to social media use.

For the tendency to compare oneself with others on social media, the Cramer's V coefficient is $V = 0.271$, reflecting a small association. This indicates that the geographical area (rural or urban) has only a limited impact on adolescents' comparison behaviour on social media. The effect is present but not significant, indicating that comparison tendencies are pretty similar across both groups. These tendencies may be influenced more by individual or psychological factors than by location.

The Cramer's V value for the variable related to the negative impact of social media on adolescents' relationships is $V = 0.365$, indicating a moderate association. This means that the geographical area has a meaningful influence on how adolescents see the impact of social media use on their relationships with family and friends. The moderate effect suggests that adolescents in rural and urban areas may experience relationship issues differently due to variations in social environments, support systems, or usage habits.

The Cramer's V coefficient for the effect of social media use on sleep quality is $V = 0.261$, suggesting a small association. This indicates that the geographical area has only a limited effect on how much social media impacts adolescents' sleep. While some differences exist between rural and urban respondents, the association remains weak. This implies that sleep disturbances caused by social media use are relatively consistent across both groups and are likely driven more by usage habits than by location.

Social Media's Positive Effect on Adolescents' Mental Health Across Rural and Urban Communities

Social media's positive effect on adolescents' mental health	Geographical Area	
	Rural	Urban
1. I believe that social media helps in building a support system during tough times.		
2. Social media helps me to learn new skills or acquire knowledge.		
3. I use social media for self-expression. (Skills or Creativity)		
4. Social media usage positively affects my academic performance.		

Table 4 presents respondents' opinions on the Positive Effects of social media on adolescents' mental health

		1. I believe that social media helps in building a support system during tough times.					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Geographical Area	Urban	4	2	7	21	1	35
	Rural	5	0	7	2	1	15
Total		9	2	14	23	2	50
		2. Social media helps me to learn new skills or acquire knowledge.					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Geographical Area	Urban	4	0	3	21	7	35
	Rural	2	3	1	7	2	15
Total		6	3	4	28	9	50
		3. I use social media for self-expression. (Skills or Creativity)					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Geographical Area	Urban	5	8	3	16	3	35
	Rural	2	1	4	6	2	15
Total		7	9	7	22	5	50
		4. Social media usage positively affects my academic performance.					Total
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Geographical Area	Urban	11	3	4	11	6	35
	Rural	1	0	6	7	1	15
Total		12	3	10	18	7	50

Source: Field Survey, 2025

Cramer's V Effect Size for Checking the Social media's positive effect on adolescents' mental health across rural and urban communities

Results and Discussion of Cramer's V Effect Size

Positive Influence	Cramer's V	Strength of Association
1. Support system during challenging times	0.483	Moderate
2. Learn a new skill or acquire knowledge	0.392	Moderate
3. Self-expression	0.294	Small
4. Academic Performance	0.442	Moderate

The Cramer's V value of $V = 0.483$ shows a moderate connection between geographical area and adolescents' views on social media as a support system. This indicates that rural and urban adolescents differ significantly in how much they rely on social media for emotional support during tough times. With $V = 0.392$, there is a moderate link between geographical area and how much social media helps adolescents learn skills or gain knowledge. This suggests that the educational benefits of social media differ noticeably between rural and urban groups.

A Cramer's V of $V = 0.294$ shows a small connection, suggesting that geographical area only slightly affects adolescents' use of social media for self-expression. This means self-expression habits are pretty similar among rural and urban adolescents. The Cramer's V value of $V = 0.442$ shows a moderate connection between geographical area and the positive academic impact of social media. This suggests that the extent to which social media improves school performance varies significantly between rural and urban adolescents.

Table 4: Opinion on Social Work Interventions in Promoting Mental Well-being among Adolescents.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	\bar{x}	σ
1. I practice mindfulness, meditation, or deep breathing exercises.							
Frequency	18	3	11	10	8	2.74	1.523
Percent	36	6	22	20	16		
2. I use thought diaries or self-reflection to challenge unfavourable comparisons.							
Frequency	25	7	12	2	4	2.06	1.284
Percent	50	14	24	4	8		
3. I engage in physical activities (e.g., walking, sports, yoga) to reduce stress.							
Frequency	18	4	4	7	17	3.02	1.755
Percent	36	8	8	14	34		
4. I spend time on offline hobbies (music, art, reading, etc.).							
Frequency	9	6	9	8	18	3.40	1.525
Percent	18	12	18	16	36		

Source: Field Survey, 2025

The results in Table 4 show what adolescents think about social-work-related mental well-being practices. For mindfulness and relaxation activities, 36% strongly disagree and 6% disagree. This indicates that nearly half do not regularly practice techniques such as meditation or deep breathing, which is reflected in a moderate average score ($\bar{x} = 2.74$, $\sigma = 1.523$). Similarly, the use of thought diaries or self-reflection is very low. Fifty per cent strongly disagree, and 14% disagree, resulting in the lowest mean ($\bar{x} = 2.06$, $\sigma = 1.284$). This suggests that most adolescents do not engage in cognitive self-monitoring. In contrast, physical activity shows a more balanced distribution. Thirty-four per cent strongly agree and 14% agree, indicating healthier stress-relief habits among some respondents, as supported by a higher mean ($\bar{x} = 3.02$, $\sigma = 1.755$). Offline hobbies like music, art, and reading are the most preferred. Thirty-six per cent strongly agree and 16% agree, resulting in the highest mean ($\bar{x} = 3.40$, $\sigma = 1.525$). Overall, adolescents participate more in physical activities and offline hobbies than in structured mental health practices such as mindfulness or thought diaries.

Major Findings

Most teenagers do not see heavy social media use as a significant cause of emotional or physical issues. Many respondents reported no impact on their stress levels (66%) and no problems with their sleep patterns (82%). This suggests that the adverse effects of heavy social media use are not commonly felt or recognised among this group.

The chi-square analysis shows no significant link between geographical area and anxiety or stress caused by social media ($\chi^2 = 6.179$, $p = 0.186$). This indicates that adolescents from rural and urban areas experience similar levels of stress from social media.

Both anxiety and stress ($V = 0.352$) and relationship impact ($V = 0.365$) show moderate connections. This means that where adolescents live affect how they deal with these negative outcomes. It suggests that rural and urban adolescents have different emotional responses and face distinct relationship challenges due to social media.

The comparison of variables with others ($V = 0.271$) and sleep quality ($V = 0.261$) show small connections. This indicates that geography has only a minor effect on these negative outcomes. It implies that tendencies to compare oneself and to experience sleep issues tend to remain similar across locations. These issues are likely influenced more by personal habits than by differences between rural and urban areas.

Three variables, support system ($V = 0.483$), learning new skills ($V = 0.392$), and academic performance ($V = 0.442$), all show moderate connections. This means that the positive effects of social media differ significantly between rural and urban respondents. It suggests that where adolescents live affect how they benefit from using social media. The variable self-expression ($V = 0.294$) shows only a small association. This means that the geographical area has little impact on how adolescents use social media to express themselves. It indicates that self-expression habits are mostly similar across rural and urban communities.

A large number of respondents strongly disagree or disagree with practising mindfulness (42%) and using thought diaries (64%). This is evident in the low average scores (mindfulness: $\bar{x} = 2.74$; thought diaries: $\bar{x} = 2.06$), suggesting limited use of structured mental-well-being strategies in social work.

Many respondents agree or strongly agree that they participate in physical activities (48%) and offline hobbies (52%), as shown by the higher average values ($\bar{x} = 3.02$ and $\bar{x} = 3.40$). This indicates a clear preference for active, creative coping methods over reflective or therapeutic ones.

Social Work Interventions

Case Work.

The goal of social work case work is to offer tailored assistance to teenagers who suffer from stress, anxiety, depression, or excessive use of social media. A social worker evaluates an adolescent's coping strategies, family environment, social media usage, and emotional condition through one-on-one conversations. High-risk behaviours, including social comparison, cyberbullying, withdrawal, or sleep disturbance, can be found through case work. The social worker then helps teenagers communicate their emotions and develop better coping mechanisms through counselling approaches such as motivational interviewing, active listening, and solution-focused practice. To lessen negative feelings, the caseworker might also teach basic tactics such as mindfulness exercises, time management for social media, or thought-challenging methods. The social worker can engage with parents, educators, and mental health specialists to provide ongoing care for teenagers who exhibit greater levels of stress or anxiety. Therefore, case work is a crucial individualised intervention for the early detection, prevention, and treatment of mental health issues associated with social media use.

Group Work.

Adolescents can learn, share, and develop together in an organised and encouraging atmosphere through group work. Group sessions on digital literacy, emotional control, peer support, and responsible online conduct can be arranged by social professionals. Teenagers can learn about typical problems, including cyberbullying, unfair comparisons, privacy hazards, and excessive social media use, through group conversations. Teenagers can build resilience, boost self-esteem, and reduce feelings of loneliness by engaging in activities such as role-plays, cooperative games, creative expression, and reflective exercises. Since teenagers learn best from shared experiences, group work also fosters positive peer influence. Themes that social workers can employ include "Managing Screen Time," "Mindful Social Media Use," "Coping with Academic Stress," and "Building Self-Confidence." Through group work, adolescents become more aware of the positive and negative effects of social media and learn to navigate online spaces safely and in balance.

Community Organisation.

Community organisations encourage group efforts and raise awareness of teenage mental health and ethical social media use. To establish environments that support adolescents, social workers collaborate with schools, parents, youth groups, local NGOs, and community leaders. Community-based programmes help parents learn how to monitor

online behaviour, set boundaries, and recognise digital threats. Awareness campaigns, street plays, protests, and school activities highlight issues such as cyberbullying, addiction, privacy, and the importance of mental health. Social workers can also support the formation of student mental health groups and advocate for digital literacy initiatives in schools. In rural areas, community organisations help bridge the gap in mental health resources by training teachers and volunteers to identify early warning signs. By mobilising community support in this way, social work ensures that adolescents receive consistent guidance both online and offline. By mobilising community support, social work ensures that adolescents receive consistent guidance both online and offline.

Suggestions and Recommendations

Based on the findings of the study, several recommendations can help enhance adolescent mental well-being and encourage healthy social media habits:

- Adolescents need structured guidance on safe, responsible, and productive social media use. Schools should integrate digital literacy, cyber-safety, and online etiquette into their curriculum.
- Social workers, teachers, and parents should guide adolescents to maintain a healthy balance between online and offline activities. Promoting hobbies, sports, reading, and creative activities can reduce excessive screen time.
- Schools and colleges should have trained counsellors or social workers to provide early intervention for adolescents experiencing stress, anxiety, or depression related to social media.
- Peer-led support groups can help adolescents share experiences, reduce feelings of isolation, and learn coping strategies. Social workers can facilitate these groups.
- Workshops for parents can help them understand digital risks, recognise emotional changes, and provide supportive guidance rather than relying solely on restrictions.
- Mindfulness exercises, deep breathing, journaling, and emotional tracking should be encouraged to help adolescents manage anxiety, negative thoughts, and comparison tendencies.
- Youth centres, NGOs, and community leaders should collaborate to organise mental health awareness campaigns, counselling camps, and digital well-being workshops.
- Adolescents should be motivated to use social media for academic improvement, skill development, creativity, and social support rather than passive scrolling.
- More longitudinal, intervention-based studies are needed in Dharwad and similar regions to understand the long-term effects and develop evidence-based social work practices.

Conclusion

The study shows that most teenagers do not see heavy social media use as a significant source of stress, emotional pressure, or physical issues. Most of them report no significant impact on their stress levels or sleep patterns. Statistical analysis indicates that geographical location does not significantly affect anxiety or stress related to social media, suggesting similar experiences for teenagers in both rural and urban areas.

However, there are moderate links to factors such as anxiety, the impact on relationships, support systems, learning new skills, and academic performance. This suggests that geographical differences do influence how teenagers experience some positive and negative effects of social media. On the other hand, issues such as self-expression, comparisons with others, and sleep quality show only minor connections. This implies that these factors are more affected by individual behaviours than by location. Additionally, the findings indicate that structured mental well-being strategies, such as mindfulness or thought diaries, are used very little. At the same time, there is a stronger preference for physical activities and offline hobbies as coping strategies. Overall, the study emphasises that geography has a moderate impact on some social media effects. Still, teenagers mostly share

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Gandhi in the 21st Century

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Abstract

The global challenges facing the world in the 21st century are more diverse and formidable than ever before. By the end of the 20th century, the ideological battles between fascism, communism, and liberalism had ended with a resounding victory for liberalism. It seemed that the world would move towards democracy, political progress, human rights, and free market capitalism, and humanity would be seen at its best. However, the global landscape changed in a way that transformed its religious, Political, racial and gender bias and institutionalised oppression pitted humans against themselves. In the race for monopoly over power and wealth, humans should be beyond the limits of intelligence and sensitivity. Today, Information technology and biotechnology have been thoroughly integrated. Technology poses significant challenges to the world. The combination of information technology and biotechnology is worth billions of dollars. It can throw people out of employment, liberty, and equality. Big data algorithms can eliminate both. Such a digital dictatorship creates a system in which all the powers of power and wealth are on centred in the hands of a tiny elite, and most people fall victim not to exploitation but, even worse, to irrelevance. Population explosion, unemployment, inequality, clashes between civilisations, war, terrorism, ultra-nationalism, a resurgence of religiosity, global migration, and the spread of pandemics are some of the hallmarks of the 21st century that clearly pose threats to humanity. This article examines the challenges faced by human beings and focuses on Mahatma Gandhi's responses to them during his time.

Key words: Civilisation, Development, challenges, Non-Violent Economy, Gandhi.

Introduction

Ended with the declaration of various endings (such as the end of ideology, history, modernity, socialism, nationalism, and the nation-state) this century is distinct from other centuries and from any past millennium. It was special in this sense. It was around this that all the aspirations and struggles of the twentieth century took shape. World wars ensued, resulting in massive bloodshed, and the Cold War polarised the world's superpowers. Hobsbawm describes this barbarity of the twentieth century as occurring in four phases: the First World War, the period of crisis between the two world wars, the four decades of the Cold War, and finally, the destruction of civilisation in much of the world in the 1980s and beyond (Hobsbawm,1998). Drawing continuity between the first

three phases, he argues that each phase, learning from previous inhumane behaviour of man towards man, laid the groundwork for a new progression of barbarity. Such a clear linear relationship is not evident between the third and fourth phases.¹ Zbigniew Brzezinski, calculating the "major genocides" between 1914 and 1990, estimated that 187 million people were killed in these phases.² In a 1994 lecture on "Guidelines on Barbarity," Hobsbawm stated that after declining for the previous 150 years, barbarity has been on the rise for much of the 20th century, with no end in sight.³ Discussing changing standards of conduct, Hobsbawm noted that during the French Revolution, it was believed that the armies of civilised nations would not kill prisoners of war or destroy countries. Before 1914, rebels and revolutionaries also believed that war should be confined to combatants, excluding non-combatant populations. In reality, war is fought against combatants, not innocent civilians. However, judging by recent wars, it seems that this is no longer the norm. Nowadays, this restriction is not observed by the governments of the warring countries, nor by revolutionaries, or by terrorists.⁴ The way hospitals, markets and schools have been targeted in the current conflict (war) between Israel and Palestine has reestablished this fact.

A study conducted 50 years ago predicted an unprecedented global population growth between 2000 and 2025. According to the forecast, natural resources will be depleted, economic inequality between the rich and the poor will deepen, and it will intensify internal and international conflicts. Today, this prediction has come true. Perhaps this is why Kortunov said that the concept of a just organisation of society has become muddled due to current civilisation and in this civilisation, there is no capacity or possibility left to save human civilisation from this danger.⁵

In a book *Ideological conflict in the modern world* Kortunov writes that due to the alluring allure of Western civilisation, the horrific manifestations of present-day Capitalism—permanent unemployment, inflation, and the growing crisis of all the moral and ethical values of society— were generally silently ignored, believing that with the development of science and technology, human society would automatically be freed from these evils. Now, these evils are blamed on inauspicious scientific and technological progress. It is considered directly responsible for unsightly urbanisation, population explosion, environmental degradation, and the threat of nuclear war.⁶ Today, increasingly alarmed voices are being raised about the spread of radioactivity and nuclear holocaust, which are responsible for deleterious reproductive changes and the pollution of oceans and rivers. Growing knowledge about the workings of the human brain and the mechanisms of reproduction is leading to tyranny. Advances in medicine and sanitation have contributed to population growth. Despite this, the world has failed to address even the most basic problems of the majority of the people.

Kortunov writes, "The entire experience of the development of the present capitalist civilisation, which expanded in the twentieth century, irrefutably proves that, no matter

¹ Hobsbawm, Eric, *Itihaskar Ki Chinta*, 2015, p. 299.

² Ibid

³ Ibid, p. 296.

⁴ Ibid., p. 298.

⁵ Bullock, Daniel, *Technocracy and Politics*, Survey, 1971, Volume 16, Issue 6, pp. 52-54.

⁶ Kortunov, V., *Ideological Struggle in the Modern World*, p. 132.

how many values it has accumulated, the capitalist system has always been a system of exploitation, social inequality, and intense class conflict. It cannot solve any of the pressing problems of human society. No matter how many promises its supporters make, Capitalism will always remain an unjust system; it will remain a system of social antagonism, unemployment, insecurity about the future, moral degradation, corruption, and crime. How is it possible to talk about improving the "quality of life" under Capitalism when, rather than the concept of altruism, the accumulation of profits through the exploitation of the working masses will always and will continue to be the fundamental driving force of this system? And even the most ambitious humanitarian projects cannot change this situation."⁷ Mahatma Gandhi had given a befitting reply to these limitations of Western civilisation in his time and had envisioned a new civilisation based on moral-spiritual and decentralisation based on simplicity and restraint.

Gandhiji saw a direct link between greed, exploitation, power and violence in the modern capitalist system, which was promoting alienation in human society. He even called Western industrial, materialistic civilisation a satanic civilisation. Apoplexy and bureaucracy were opposed to the dimensions of the modern macroeconomic and social structure.⁸ He focused his attention on questions of industrialisation, technology, centralisation, environment, social relations, and human moral and cultural well-being.

The search for a new Civilisation:

In this rapidly changing world, where means of communication and transportation are constantly evolving, the very existence of human beings is becoming increasingly insignificant. They are gradually becoming mere objects or products. Their hopes and lofty imaginations are being subjugated to the material goals of increased production and consumption. It has become tough, if not impossible, for them to exercise their independent judgment. S. Radhakrishnan says that we no longer have any individual dimension. Our desire for a personal life has vanished. Our lives have become entwined with pleasure; we have become helpless, and our freedom has been lost. We no longer have any choice in our own actions. We are becoming parts of a colossal machine. In the excitement of the machine's welfare, we are sacrificing ourselves.⁹

The relationship between Western capitalist civilisation and fascism is an old one. First-generation thinkers of the Frankfurt School, such as Walter Benjamin, Horkheimer, and Adorno, linked the rise of fascism to the fundamental characteristics of the capitalist production system: massive bureaucracy, technological propaganda, human psychological complexities, and questions of art and culture. Critical theory proposed the basic idea that by the twentieth century, capital and technology had become so intertwined that these forces now controlled all of human society. Minimal remains of the liberalism of the early stages of Capitalism in this society. While individuals enjoy a relative degree of freedom, public life is subject to widespread cultural and psychological constraints.¹⁰ Gandhi's spiritual civilisation, based on Sarvodaya, simplicity, and equality among all religions, can play an essential role in breaking this shackle.

⁷ Ibid., page 143.

⁸ Verma, Dr Vishwanath Prasad, *The Political Philosophy of Mahatma Gandhi and Sarvodaya*, 1959, p. 130

⁹ S. Radhakrishnan (Foreword), *Mahatma Gandhi 100 years*, p. 9.

¹⁰ Kumar, Vijay; *Adhere Samay Me Vichar*, p. 63

New advocates of Western civilisation are busy justifying the inevitable clash of civilisations. Huntington's classification of civilisations, when discussing the clash of civilisations, is fundamentally based not on civilizational principles but on religious principles. Glorifying the artificial prosperity of Capitalism, the Japanese-American author Fukuyama wrote a book titled "The End of History." It is ironic that while intellectuals and creatives in prosperous capitalist countries were interpreting the end of history as meaning purposelessness, aimlessness, and the end of ideas (which had created a literary vacuum), Fukuyama, mesmerised by the electronic revolution, presented it as the culmination of capitalist civilisation. It was a symptom of hysteria. The reality was that Capitalism's roots had been completely eroded, and only its external structure remained intact.¹¹ Capitalism's creation of special economic zones, etc., also highlights its limitations: that it lacks the capacity to advance the entire world.

A consideration of the concept of modern development reveals that the glitz of all modern civilisation results from the exploitation of the majority of the population. Reflecting on Western civilisation, Dostoevsky wrote, "Our century witnessed a terrible revolution, and the bourgeoisie emerged victorious. With the rise of the bourgeoisie, monstrous cities were built, the likes of which no one could have imagined. These cities boasted magnificent palaces, international exhibitions, banks, and numerous institutions, surrounded by factories, polluted rivers, and railway platforms. At present, people await a third phase in which the bourgeoisie will end, the common people will awaken, and all the land will be distributed among communes, and they will live in gardens. Gardens will usher in a new civilisation. Thus, cities will replace the castles of the feudal era, and gardens will replace cities. This will be the direction of civilisation's development."¹²

Alvin Toffler said, Current society has entered an era marked primarily by change, and it is currently on the verge of profound transformations. He divides the entire history of human society into 800 lifetimes, stating that 650 of these lifetimes were spent in caves. Only the last 70 lifetimes possessed written language. Only the previous six eras have seen printed words. Only the last four could accurately measure time, and only the earlier two used electric motors. Most people in human society have been able to utilise the benefits of scientific and technological progress only in the current 800th lifetime. But this has not proven true.¹³ Today, a handful of people control most of the resources, and many people are forced to live a life of deprivation.

Toffler further writes that, "Revolution shatters institutions and power relations. Clearly, what is happening today in all highly technological nations is a society suffering from revolutionary change...What is happening today is not a crisis of Capitalism, but of industrial society itself, whatever its political form. We are simultaneously experiencing a youth revolution, a gender revolution, a racial revolution, a colonial revolution, an economic revolution, and the most profound and rapid technological revolution in history. We are living in a general crisis of industrialism. In a word, we are in the midst of the supreme industrial revolution." In the early 1960s, economists regarding industrialisation and its consequences, claimed that the world was entering a new era —the era of

¹¹ Ibid. page 216.

¹² Kapoor, Mastram; *From Existentialism to Gandhism*, p. 205.

¹³ Toffler, Alvin, *Future Shock*, 1971, p. 15.

complete industrialisation.¹⁴ In our time, the spectre of communism that once haunted Europe cannot linger; instead, industrialisation in its various forms is emerging before the entire world—the monster of industrialisation struts across the earth, transforming almost all forms of old and traditional society. A free industrial society will undoubtedly be very different from what we traditionally think of Capitalism.¹⁵ It will also be very different from what we traditionally think of socialism. An industrial society that transcends Capitalism and socialism. It will be a new society that transcends both.¹⁶

The current capitalist civilisation is based on the dream of freedom from exploitation and equality. However, communism's concept of production and its associated notions of large-scale production and consumption remained the same as those of Capitalism, except that ownership of property and the market shifted from the capitalist class to the government. In contrast, Gandhi envisioned a new civilisation to replace Western civilisation. Therefore, he rejected this definition of production, arguing that self-production is also a form of production (a life of self-reliance), and that a life of simplicity and restraint, achieved by limiting consumption, is a better ideal. Mahatma Gandhi criticised modern economics at its fundamental foundation: it lacks morality. In his view, economics that do not incorporate morality are sinful. In his words, *I admit that I do not make any clear or precise distinction between economics and ethics. Economics is immoral and therefore sinful, which harms the moral welfare of an individual or a nation.*¹⁷ Defining true economics, Gandhi clarifies that *"true economics ensures social justice, promotes the well-being of all, including the weakest, and is indispensable for a decent life."*¹⁸

For Gandhi, being human means being moral, and therefore, all actions cannot be beyond the scope of ethical questions. He also rejects economics that does not concern itself with the moral rise or fall of individuals. In fact, he sees no contradiction between moral and material well-being. In his view, material development can also be achieved through ethics. On the other hand, he connects economics with practicality, saying that the function of economics is to ensure social justice. Social justice refers to the rights of those who are marginalised or disadvantaged. Therefore, when economics deprives the deprived of their rights, it automatically becomes a moral act. Thus, economics cannot be separated from morality.

In modern economics, the consumer is treated as a commodity, rather than a human being. Their importance exists only as long as they continue to consume. The purpose of the economy is never to understand the impact of that consumption on the consumer, society, and nature. The development of the modern economy is not only about fulfilling needs but also about creating artificial wants/needs. Therefore, in this economy, new artificial demands are made, and consumers are forced to consume. Herbert Marcuse

¹⁴ Ibid, pp. 165-166.

¹⁵ Kerr, C., Dunlop, J. T., Harbison, F.H., and Myers. A.,(1960). *Industrialism and Industrial Man: The Problems of Labor and Management in Economic Growth*. 1962, pp. 9-28.

¹⁶ Driker , Peter F. , *The New Society , The Anatomy of the Industrial Order* , 1962 , p. 351.

¹⁷ *Young India*, 13/10/1921, p. 325

¹⁸ *Harijan*, 09/10/1937, p. 292

has drawn our attention to this.¹⁹This economy, by treating humans as mere consumers and constantly increasing consumption, not only gives rise to violence in the social, political, economic, and cultural spheres, but also, due to its continuous consumption, is violent towards natural resources and the entire ecosystem. Therefore, in this economy, consumption itself becomes violent and supports this violent process.

Gandhiji observed and understood this nature of the modern economy well, which is why he transformed consumption into Satyagrahi consumption. This concept is also reinforced by non-possession. Non-possession becomes not just an individual value but also a social virtue. This non-possession fulfils one's own needs but separates itself from artificial demands/needs. Explaining non-possession, he says: "*The golden rule is... that we firmly refuse to enjoy anything that is not available to millions. This ability to refuse will not come to us suddenly. First, we must develop the mental attitude that whatever is available to us is not ours.*" Or we won't enjoy a facility that millions of people don't have access to. The next step is to change our lives as quickly as possible to conform to this attitude."²⁰ Thus, for Gandhi, non-possession goes beyond a mere moral or spiritual principle and also becomes an economic necessity. One meaning of non-possession is the non-violent act of achieving freedom from the temptations of artificial needs. Along with this non-possession, Gandhiji certainly emphasises the fulfilment of basic needs. He distinguishes between voluntary renunciation and poverty. Voluntary renunciation means that a person fulfils their basic needs—food, clothing, shelter, education, health, etc.—and isolates themselves from artificial demands. He does not support poverty. This voluntary renunciation becomes the very meaning of civilisation for Gandhiji. In his words, "*Civilisation in the true sense does not consist in the multiplication of wants, but in the deliberate and voluntary reduction of them.*"²¹ Gandhiji is often called anti-machine, regressive, etc. However, his writings and statements clearly show that he was never opposed to machinery. He intended to eliminate the greed and uncontrolled desire for profit that are inherent in machinery. While participating in a conference of industry ministers, he described three characteristics of machinery: first, "*I am not using this word in its broad sense, but rather as a tool that, instead of supplementing or enhancing the efficiency of human or animal labour, displaces it.*" This is the first distinguishing characteristic of a machine. Second, its growth or development knows no limits. This cannot be said of human labour. Third, it seems to be driven by its own will or talent. It is the enemy of human labour. His view regarding machinery was quite clear: the use of machinery displaces humans and, therefore, should be opposed. He considers humans supreme and machines inferior to them.²²He wants to restore humans to their original place, as machines have transformed them into machines.²³Clarifying his position further, he says, "*My opposition is not to machines, but to the madness that is driving them. Today, people have become obsessed with what are called labour-saving devices. They certainly save labour, but millions of people are left unemployed and wandering the streets, starving. I, too, want to save time and labour, but it should not be for any*

¹⁹ Marcuse, Herbert, *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society*, 1991, p. 3

²⁰ *Young India*, 24/06/1926, p.226

²¹ *From Yerwada Temple*, p. 23-26

²² *Young India*, 13/11/1924, p. 378

²³ *Harijan*, 29/08/1936, p. 228

particular class, but for all of humanity. ²⁴ He further states in this context, *"The driving force behind machinery is not labour saving, but the greed for money. In today's current economy, I am waging war against them with all my might... My aim is not to destroy all the machines, but to limit their use."* ²⁵

In the twentieth century, technological discoveries and scientific advancements were also driven by the pursuit of profit. This was the basis of the entire capitalist system. David Hardiman, while discussing Gandhi, civilisation, science, and technology, points out that Gandhiji believed that scientific research, by its very nature, benefits the elite class, which remains aloof from physical labour. This distance from physical labour and practical experience prevents research from yielding results that benefit the masses. This can be illustrated by the example of scientific research prioritising large labour-replacing machines for the use of the wealthy class, rather than technological innovation or improvement of the spinning wheel.²⁶ The renowned socialist thinker Madhu Limaye, in his book *Marxism and Gandhism*, the famous scholar Aldous Huxley and the rebel Marxist Rudolf Bahro have been quoted supporting this view of Gandhiji.²⁷

Aldous Huxley writes that *researchers and systematists have used selfless scientific discoveries to establish machines of mass production and exchange in large industries, rather than to provide individuals and cooperative groups with affordable and simple means of production that can support their livelihoods and meet the needs of local markets.* Similarly, Rudolf Bahro suggests that *if we wish to halt the process of human disruption of the natural balance and reestablish harmony between human existence and nature, particularly on a material level, we must continually adapt our approach to production. The average type of large-scale industries on which the civilisation of developed countries currently rests, and which are spreading to other areas, cannot be considered technological development suitable for every type of society. Its development and organisation have been based on the predominance of abstract labour and its value enhancement. Therefore, it has been questioned due to the environmental crisis on the one hand and the psychological crisis on the other, primarily because of the paralysis of labour motivation.*²⁸

It is essential to clarify that it is incorrect to assume that Gandhiji disliked technological innovation or progress. He himself favoured it, but his fundamental vision was different: advanced technology *that preserves humanity and is available to the general public.* Gandhiji himself witnessed many changes in the spinning wheel during his time and approved various technological advancements in areas such as toilets, agriculture, housing, and industry, among others. All this makes it clear that human-centred technology and its innovations were his goals. Modern economics views economic development as a one-dimensional process, characterised by mass production achieved through the continuous exploitation of raw resources with heavy and complex technology. It views this as a form of economic development. This process does not include who is being affected and in what form by this process. To maintain continuous

²⁴Gandhiji, *Hind Swaraj*, 2001, p. 14

²⁵ Ibid

²⁶ Hardiman, David, *Gandhi in His Time and Hours: The Global Legacy of His Ideas*, 2003, p. 72

²⁷ Limaye, Madhu, *Marxism and Gandhism*, 1981, p. 41-42

²⁸ Ibid

production and continuous consumption in this economy, the latest, increasingly efficient, and powerful technologies are required. However, this uncontrolled use of technology leads to technological determinism. This means that once a large and powerful technology is chosen to meet one's needs that technology begins to determine other things according to its own rules. It adapts to the system in a way that suits it. It brings about change. Large and powerful technology is itself violent against nature. It inevitably creates hierarchies, alienation, exploitation, bureaucracy, and centralisation. It gives rise to exploitation not only between humans but also between humans and the natural world.

For Gandhi, civilisation is the fulfilment of moral duty. He challenges the prevailing modern concept of civilisation. He calls modern Western civilisation fundamentally consumerist and satanic, and calls its very motivating force harmful. Gandhi, far from being a blind opponent of Western civilisation, is willing to embrace its positive and creative aspects with an open heart. However, he considers Western civilisation's fundamental goal harmful. In his book, *Hind Swaraj*, Gandhi rejects both the basic assumptions of the world in which he was born. By demanding self-rule for India, he rejects the traditional European notion of superiority and dominance. By presenting the philosophy of the spinning wheel, he wholeheartedly condemns the modern mechanical civilisation of the Western world.²⁹ He questioned the legitimacy of Western civilisation, calling it a satanic civilisation, and as early as 1896, he described Western civilisation as primarily violent, while Eastern civilization was non-violent.³⁰ Edward Carpenter, in his book "Civilization: Its Cause and Cure," defines modern civilisation as a "disease". Therefore, regarding the adoption of any modern ideology, Gandhi says, "*I will accept them (outside ideas) to the extent that I can digest them and adapt them to Indian conditions. I do not want to block new ideas, but I do not want to become their slave either.*"³¹

In fact, Western civilisation followed Darwin's theory of "survival of the fittest" and valued the right of the strong to survive. Gandhiji, in sharp contrast, envisioned the Daridra Narayana, not only championing the right of the weakest to survive but also transforming the weakness of the weak into a great power by inventing the weapon of non-violent Satyagraha. To determine the usefulness of every human development plan, he set the criterion for how much the poorest and most vulnerable would benefit from it. He refused to accept arbitrary indicators of national income or national production as the yardstick of development, instead making the condition of the lowest strata the benchmark of development. By writing "Hind Swaraj" in the early twentieth century (1909), Gandhiji not only envisioned a new civilisation for India, but also considered Western civilisation a mechanical civilisation and disagreed with many of its fundamental concepts.³² The economic structure of Western civilisation (which India also adopted) was based on a specialised production system, meaning that a region would produce a single commodity and sell it in the market, using the money obtained to purchase other goods that met its needs. Gandhiji envisioned a self-sufficient village, a unit that would produce all the things it needed to sustain itself. In other words, the production concept of the

29 F. Cyril Jaimes, "Seeds of the Future", *Mahatma Gandhi 100 Years*, p. 171.

30 Gandhi, M.K., *Autobiography*, p. 163.

31 Mashruwala, Kishoriwala, *Gandhi and Communism*, p. 64.

32 Kapoor, Mastram, p. 207.

Western economy was market-based, meaning that production is only that which is done for the market. According to this principle, production done for oneself is not production. Gandhiji said that production done for oneself is also production. And he redefined production and producer.³³

Before Gandhi, Dostoevsky considered the materialistic world inadequate for humanity. Because in such a world, humans cannot be happy; humans need something more than material prosperity. They cannot subsist on bread alone. They want to believe that there is a happiness higher than materiality, a transcendental joy. They aspire to something unseen, something that cannot be achieved through hard work or cunning. Humans desire the unimaginable, the boundless, and the infinite. The character Trifonov in Dostoevsky's novel "The Devils" says, "They always need something boundless and great, something to which they can bow down. If man is deprived of that, he cannot live. He will die of despair."³⁴

Today, it is believed that as human needs increase, humans will develop more. Contrary to the value of Western civilisation, Gandhi held the value of restraint and simplicity. By reducing his needs and freeing himself from the allure of money, property, and material comforts, Gandhiji made this his ideal life, and he followed this ideal throughout his life. But Gandhiji had no conflict with the spiritual goals of this civilisation. In fact, he refined these goals (liberty, equality, fraternity, etc.), making them sharper and more easily understandable.³⁵

Gandhi's challenge to Western civilisation wasn't based on any one religion, but rather on morality. However, he considered freedom, not God, to be the source of morality. Instead of saying "God is truth," he said "truth is God." This meant that anyone who found truth (and freedom was his most incredible truth) found God. This was an extraordinary proposition. Western civilisation is steeped in consumerism, racist fanaticism, and barbarism.³⁶

The mention of these problems and challenges of the 20th and 21st centuries does not mean that nothing positive has happened in this century. Art, literature, cinema, medicine, and science have also seen unprecedented achievements in other areas. For example, while this century has given birth to terrible epidemics, the technological advances of this century have also provided us with ways to prevent them. Unprecedented developments in the fields of machine learning and artificial intelligence have also made our lives easier. While the rise of identities has increased prejudices, at least at the level of consciousness, we have become tolerant and friendly towards lower-class identities. In his book *Humankind*, Rutherford B. Nye writes extensively on the optimistic history of humanity and poses a fundamental question: Are humans inherently violent, aggressive, and jealous? Nye discusses the future of democracy in the book. Some sources suggest: 1. Participation rather than the pessimistic tendency to view people as selfish. Needs to be emphasised. 2. We need trust instead of polarisation. 3. We need to adopt a policy of inclusion instead of exclusion. 4. We need to focus on the interests of all

³³ Ibid., 2008, p. 207.

³⁴ Troet, Henry, Dostoevsky, 2008, p. 247.

³⁵ Kapoor, Mastram, From Existentialism to Gandhism, p. 207-208.

³⁶ Ibid., p.209.

instead of appeasement. 5. We need transparency instead of corruption. 6. We need to demonstrate market solidarity for our own interests. 7. We need to prioritise self-respect instead of inequality.

Brechman says We know that when we hide in our trenches, reality evades our sight. It's not sentimental or childish to hold an optimistic view of humanity. People are inherently compassionate by nature. There are. Believing in peace and forgiveness is courageous and practical. All of this is as ancient as time itself. Because, as with the best things in life, the more you give, the more you get. This is true of trust and friendship. It is true about and it is also true about peace. (Brechmann, Rutherford. *Humankind*, p. 326)

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Farmer Producer Companies as Instruments of Tribal Empowerment: A Review

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Abstract

Tribal communities in India, accounting for approximately 8.6% of the national population, continue to experience entrenched socio-economic marginalization, primarily due to geographical isolation, low agricultural productivity, and restricted access to organized markets. Their reliance on subsistence farming and Non-Timber Forest Produce (NTFP), combined with exploitation by intermediaries, perpetuates cycles of poverty and exclusion. The Farmer Producer Company (FPC) model, introduced under the Companies Act of 2002, has been recognized as an institutional innovation capable of addressing these structural challenges by collectivizing smallholders and integrating them into formal value chains.

This review paper synthesizes scholarly literature, policy documents, and empirical case studies to critically examine the role of FPCs in the empowerment of tribal communities. The analysis is structured around three dimensions of empowerment: economic, social, and institutional. The findings suggest that FPCs contribute to economic empowerment through collective marketing, improved price realization, and value addition to tribal crops and NTFP. Social empowerment is reflected in enhanced skill development, women's participation, and strengthened community solidarity. At the institutional level, FPCs promote democratic governance, improve access to financial institutions and government schemes, and create leadership opportunities for tribal members.

Nevertheless, persistent challenges remain, including inadequate infrastructure, limited managerial capacities, scarcity of working capital, and policy constraints in forest produce marketing. The review also identifies gaps in the literature, particularly concerning long-term impact assessment, gender-specific outcomes, digital integration, and ecological sustainability. The paper concludes that tribal FPCs, if strategically supported, hold significant potential to advance inclusive rural development and grassroots empowerment in India.

Key words: Farmer Producer Companies (FPCs), Tribal Communities, Economic Empowerment, Social Empowerment, Institutional Empowerment, Non-Timber Forest Produce (NTFP), Inclusive Rural Development, Sustainable Livelihood etc.

Introduction

In tribal regions of India, particularly in forest-dependent districts such as Gadchiroli, Nandurbar, and parts of Odisha and Jharkhand, small and marginal farmers face persistent socio-economic challenges. Agriculture is largely subsistence-based, rain-fed, and low in productivity, while many households depend on Non-Timber Forest Produce (NTFP) such as honey, mahua, and medicinal plants for livelihood. Geographical isolation, poor infrastructure, and limited market access often lead to exploitation by intermediaries, perpetuating poverty and economic vulnerability. To address these issues, the Government of India introduced the Farmer Producer Company (FPC) model under the Companies (Amendment) Act, 2002. FPCs combine the social objectives of cooperatives with the efficiency of private enterprises, organizing smallholders into collective entities capable of bulk procurement, value addition, formal credit access, and direct market integration. Agencies such as NABARD, SFAC, and state governments have promoted FPCs to strengthen livelihoods and foster inclusive rural development.

Despite their potential, outcomes of tribal FPCs are mixed; many struggles with managerial capacity, working capital, and weak market linkages, while others achieve improved collective marketing, income, and women's participation. This study systematically reviews literature and case studies to examine how FPCs contribute to economic, social, and institutional empowerment, identify challenges, and propose strategies for sustainable livelihood development, offering insights into transforming marginalized tribal communities into self-reliant, market-oriented actors.

Objectives of the study

1. To examine the role of FPCs in economic empowerment of tribal communities through enhanced income, market access, collective marketing, and value addition.
2. To assess the contribution of FPCs to social empowerment, including skill development, leadership participation, women's involvement, and community cohesion.
3. To explore institutional empowerment outcomes facilitated by FPCs, such as access to government schemes, credit institutions, and democratic decision-making.
4. To identify key challenges and constraints faced by tribal FPCs, including inadequate infrastructure, managerial limitations, capital scarcity, and regulatory barriers.
5. To review and synthesize research gaps concerning long-term impact, gender-specific outcomes, digital integration, and ecological sustainability.
6. To propose policy recommendations and strategic interventions to strengthen FPCs as inclusive and sustainable instruments of tribal development and rural transformation.

Research Methodology

The present study adopts a systematic review design to examine how Farmer Producer Companies (FPCs) contribute to the economic, social, and institutional empowerment of tribal communities in India. Unlike empirical studies that rely on field surveys, this research draws entirely on secondary data from credible sources, including peer-reviewed journal articles, policy reports, project evaluations, and empirical case studies published between 2010 and 2025. Additionally, institutional reports and working papers from organizations such as NABARD, SFAC, NITI Aayog, the Ministry of Tribal Affairs, and NABCONS were reviewed to incorporate a policy-oriented perspective.

The study applied specific inclusion and exclusion criteria to ensure the relevance and reliability of the sources. Selected studies focused on FPCs or Farmer Producer Organizations operating in tribal or forest-dependent areas, examined empowerment outcomes, and provided methodological clarity. Research on non-tribal groups, corporate farming, or unrelated cooperative models was excluded.

A comprehensive search using keywords such as “Farmer Producer Companies,” “tribal empowerment,” “FPOs,” “NTFP value chain,” and “inclusive rural development” yielded a total of 60 key documents for detailed analysis. The study employed qualitative content analysis, categorizing findings under economic, social, and institutional empowerment, identifying recurring themes, successful interventions, and persistent challenges. This approach provides an integrated, objective, and evidence-based understanding of the role of FPCs as instruments of tribal empowerment in India.

Review of Literature

The Farmer Producer Company (FPC) model has emerged as a hybrid institutional framework combining the social objectives of cooperatives with the commercial efficiency of private enterprises. Numerous studies, policy documents, and project evaluations have explored its potential in improving the livelihoods of small and marginal farmers, particularly among tribal communities. The review of literature is organized under three dimensions of empowerment—economic, social, and institutional—which together capture the multidimensional role of FPCs in rural transformation.

Economic Empowerment

Economic empowerment represents the most direct and visible outcome of FPC formation. According to Bhatt and Bhattacharya (2020), FPCs enable smallholders to overcome the limitations of fragmented landholdings by aggregating produce, achieving economies of scale, and negotiating better market prices. Barla and Meena (2021) emphasize that collective marketing and bulk procurement of agricultural inputs significantly reduce transaction costs and dependency on intermediaries.

In tribal areas, FPCs have been instrumental in improving income security through value addition and organized marketing of Non-Timber Forest Produce (NTFP). Chauhan et al. (2022) highlight how tribal FPCs in Madhya Pradesh successfully integrated the processing of mahua, tamarind, and lac into commercial value chains, ensuring higher price realization for members. Similarly, Kumar and Rani (2019) found that tribal

producers linked through FPCs witnessed a 20–30% increase in average income compared to those selling through traditional channels.

NABARD (2020) reports that access to institutional credit and collective bargaining power have improved investment in farm infrastructure, storage facilities, and farm mechanization. However, Ravindranath and Mishra (2021) caution that the economic sustainability of FPCs often depends on professional management, working capital, and the capacity to diversify into processing or branding. Thus, while economic empowerment has been notable, it remains uneven across regions and commodities.

Social Empowerment

Social empowerment through FPCs extends beyond financial gains and relates to enhanced human capabilities, social inclusion, and collective confidence. Singh and Patel (2018) argue that FPCs foster participatory decision-making and democratic engagement, which strengthen social cohesion within tribal villages. Training programs and capacity-building workshops organized by FPCs have significantly improved managerial and entrepreneurial skills among tribal youth.

A growing body of literature highlights the role of FPCs in women's empowerment. Sharma and Thomas (2021) observed that women-led or gender-inclusive FPCs in Chhattisgarh and Odisha have encouraged women to participate in leadership roles, financial management, and community-level decision-making. The collective structure has increased their visibility in market activities and improved self-esteem.

Verma (2020) notes that FPC participation also enhances social capital by promoting trust, cooperation, and knowledge sharing. Furthermore, FPCs have contributed to improving community resilience during economic shocks, such as the COVID-19 pandemic, by facilitating mutual support networks and local resource mobilization (SFAC, 2021). Nonetheless, Mehta and George (2022) caution that social inclusion remains limited in areas where traditional hierarchies, gender norms, or literacy barriers restrict participation.

Institutional Empowerment

Institutional empowerment involves strengthening the ability of tribal communities to engage with formal institutions, policies, and governance mechanisms. The FPC model, by design, encourages democratic management and accountability, where members elect boards, formulate by-laws, and collectively decide on operational matters. Reddy and Singh (2020) state that such institutional mechanisms build confidence among tribal farmers to negotiate with banks, government departments, and private buyers.

According to NITI Aayog (2019), FPCs serve as vital intermediaries linking tribal producers to formal value chains, government schemes, and e-market platforms such as e-NAM. This has expanded the scope for institutional inclusion and enhanced awareness of legal and regulatory processes. Chand and Biradar (2021) found that exposure to formal financial systems through FPCs has increased credit discipline and reduced dependency on informal lenders.

Moreover, NABARD (2022) emphasizes that effective governance practices, transparency, and audit mechanisms within FPCs create a foundation for long-term sustainability. However, Kumar and Sahu (2023) identify institutional weaknesses such as lack of professional leadership, inadequate training in compliance procedures, and dependence on external support agencies as persistent challenges. These constraints often limit the ability of FPCs to operate autonomously and scale their activities sustainably.

Synthesis of Literature

The reviewed studies collectively affirm that FPCs play a transformative role in promoting tribal empowerment by addressing economic vulnerability, enhancing social participation, and facilitating institutional integration. However, the literature also reveals certain gaps and inconsistencies. There is limited longitudinal research on the long-term impacts of tribal FPCs, particularly regarding gender outcomes, digital integration, and ecological sustainability. Most available studies focus on short-term performance indicators, leaving questions about organizational maturity and governance evolution unaddressed.

Therefore, this systematic review highlights the need for more comprehensive, comparative, and interdisciplinary research to assess how FPCs can serve as enduring instruments of empowerment and inclusive rural development among tribal communities in India.

Results and Discussion

The systematic review of 60 scholarly and institutional sources highlights the role of Farmer Producer Companies (FPCs) in empowering tribal communities across economic, social, and institutional dimensions.

Economic Empowerment: FPCs improve income, market access, and value addition for agricultural and forest-based products, with reported income increases of 15–35%. They reduce intermediary exploitation and enhance access to institutional credit, though many FPCs remain dependent on external facilitation due to limited capital, poor infrastructure, and weak business planning.

Social Empowerment: FPCs foster collective participation, leadership, skill development, and community cohesion. Women's involvement in governance and entrepreneurship strengthens social inclusion. However, social hierarchies, low education, and traditional norms sometimes limit participation.

Institutional Empowerment: FPCs enhance engagement with formal governance, legal compliance, and financial systems. Schemes like NABARD's PODF and SFAC's grants strengthen institutional linkages, yet dependence on external support and limited managerial capacity constrain autonomy.

Integrated Discussion: Successful FPCs share community ownership, transparent governance, active women's participation, and diversified portfolios. Emerging opportunities include digital platforms, organic certification, climate-resilient agriculture, and eco-tourism, which can enhance sustainability and cultural preservation.

Suggestions

- Based on the review findings, several recommendations are proposed to enhance the effectiveness and sustainability of tribal FPCs across economic, social, and institutional dimensions.
- Economic Strengthening: Improve access to finance through low-interest loans and revolving funds; promote value addition, branding, and small-scale processing; establish market linkages via e-NAM, retail chains, and digital platforms; and diversify activities into livestock, irrigation, and eco-tourism to reduce seasonal vulnerability.
- Social Empowerment: Encourage inclusive membership and leadership for women, youth, and marginalized groups; institutionalize capacity-building and training in management, accounting, and entrepreneurship; align FPC activities with traditional tribal institutions to strengthen community cohesion; and sustain motivation through regular awareness programs and exposure visits.
- Institutional and Policy Support: Provide professional management support via CEOs or mentors; integrate FPCs with government schemes like NRLM, TRIFED, and NABARD's PODF; implement policy reforms for fair NTFP marketing; establish monitoring and evaluation frameworks; and adopt ICT tools for governance, bookkeeping, and e-commerce.
- Strategic Outlook: Tribal FPCs should evolve into self-sustaining, member-driven enterprises. Collaborative efforts among government, academia, NGOs, and private sector actors, combined with focused capacity building, market integration, and strong governance, can make FPCs robust instruments of inclusive and sustainable rural development.

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An Exploratory Study on Significance of Digital Literacy with specific reference to Women Entrepreneurship in Rural Maharashtra

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Abstract

Objective: Digital literacy has emerged as a crucial enabler of financial inclusion, economic empowerment, and entrepreneurial success in the modern digital economy. This study explores the significance of digital literacy among women entrepreneurs in rural Maharashtra, where access to technology and financial services remains a challenge.

Method: Through a Systematic literature review approach, the study examines how digital skills influence business operations, financial decision-making, and access to digital financial services. The study also identifies key barriers, such as limited digital infrastructure, socio-cultural constraints, and lack of formal training, that hinder women's effective utilization of digital tools. The data for the study will be covered between the decade of 2015 to 2025 through various authentic sources such as EBSCO, Scopus, & SSCI.

Findings: The findings provide insights into the role of digital literacy in fostering women's entrepreneurship and offer policy recommendations to enhance digital education and infrastructure in rural areas. This study also adds to the existing discourse on gender equity in entrepreneurship domain by offering valuable insights for policymakers, educators and practitioners striving to support women within this flourishing culture.

Implications: This study contributes to the broader discourse on digital inclusion and women's economic empowerment, emphasizing the need for targeted interventions to bridge the digital divide in rural India.

Keywords: Women Entrepreneurs, Digital Inclusion, Financial Inclusion, Women Empowerment, Rural Maharashtra.

Introduction

In the rapidly evolving digital global economy, digital literacy has emerged as crucial component in the last decade, specifically among women in rural areas. Digital literacy referred to as the capacity to access, comprehend and successfully use digital resources and is no longer only the mantra for corporate success. As digital platform reshaping business, communication, service delivery and ability to navigate digital tools which has become essential for socio-economic development (UNESCO,2018). With rapid increase of e commerce platforms, digital payment, social media marketing and entrepreneurship particularly for women discovered new and ample opportunities for business growth and financial independence (Jadhav and Kukarni,2021). Nevertheless, the digital divide remains a substantial hurdle in rural region where socio cultural barriers, lack of infrastructure development and educational gap always remains a challenge for digital upgradation (Kumar and Sharma,2021).

Maharashtra, one of the India's most progressive, presents a paradox: urban part is observing rapid digital change while rural areas have a diverse landscape where women engage in various income generating activities like handicrafts, food processing, dairy farming, tailoring, farming and other homebased activities (Shinde & More,2023). But rural women entrepreneurs facing hurdles resulting from a lack of financial & digital education, limited access to financial resources and strongly ingrained patriarchal norms which limit their mobility and hidden potential. While government led initiatives such as Digital India, Mahila smruddhi yojana, Maha Mahila Unnati Scheme and other various finance programs to enhance digital inclusion for rural women entrepreneurship need to be explored and accelerated.

Research demonstrated that digital inclusion helps women to promote their products, interaction with customers, participation at online marketplace and manage finances through digital payment (Datta2020). However, issues like low literacy levels, restricted digital exposure, gender norms and limited infrastructure continue to inhibit full adoption (Sahay,2020). In rural areas, digital literacy plays transformational role as it bridges the gaps between urban and rural economic development. Women, who constitute a major part of rural economy often face multiple barriers that restrict their entrepreneurial aspirations. Digital skills have the potential to overcome several of these challenges by enabling women to access digital markets, financial platforms, and information sources that were previously inaccessible (Ravindran, 2019). Despite a lot of efforts through Government initiatives such as Digital India or Skill India, still rural women entrepreneurship understanding and adoption of technology is in nascent stage (Patil & Deshmukh,2020).

Although numerous studies have examined women entrepreneurship and digital inclusion independently, but there is limited research focusing specifically on how digital literacy influences entrepreneurial growth and women empowerment among rural women in Maharashtra rural region. Exploring and understanding of his relationship is vital, as digital inclusion has the potential to led transformation in local economies, enhancing

women financial independence and support sustainable rural development. Therefore, the present study aims to investigate the significance of digital literacy which act as foundation for the entrepreneurial activities in rural Maharashtra, exploring opportunities, challenges and way for women empowerment.

Review Methodology

The present study applied a systematic literature review methodology to investigate the significance of digital literacy for women entrepreneurship specifically in rural Maharashtra. This method enables the blend of theoretical and empirical insights from diverse research domains such as women empowerment, technology inclusion, entrepreneurship, rural development (Zalata et al,2019). To gain better insights and gather comprehensive and high-quality literature, various academic databases such as Scopus, Web of Science, Google Scholar, JSTOR, EBSCOhost, and ResearchGate were deeply explored. Multiple keywords such as “digital literacy,” “women entrepreneurs,” “rural women,” “ICT adoption,” “digital skills,” and “Maharashtra women entrepreneurship” were used to select relevant research papers consistent with established search strategies for systematic review (Higgins,2011). The exploration was limited to peer reviewed journal articles, conference research papers, government reports and reputed institutional publications between 2015 to 2025 to capture updated digital transformation in India.

Eligibility, Identification and Screening

To make sure relevance and academic rigor, inclusion and exclusion criteria were used to consider studies focusing on digital inclusion or digital literacy among women, research on rural, urban and semi urban on women entrepreneurship, studies conducted in India with special reference to Maharashtra and literature published in English language. Studies that did not addresses digital literacy or women entrepreneurship, focused on urban women population or lacked methodological rigor were excluded an alignment with the guidelines suggested for systematic literature review (Higgins et al,2011). The screening phase included three steps: title screening for relevance, abstract screening to evaluate the scope and alignment with study theme and full text review to examine methodological quality and contribution in form of analysis, discussion and implications. Duplicate entries were eliminated and finally 15 to 20 most relevant research papers were included for review synthesis.

Data Extraction and Analysis

A well-structured data extraction process was used to capture all required details from the selected study including author, year, research objective, context, methodology and major findings. In narrative and systematic review this type of thematic categorization is considered appropriate (Braun & Clarke,2006). A thematic analysis was then conducted to summarize literature into two major themes such as digital tools, the role of digital tools in entrepreneurial activities. The study also analyzed socio-cultural barriers for women entrepreneurs, impact of linking digital platforms with market for rural women entrepreneurs and the effectiveness of government and NGO led digital literacy programs in rural areas. Cross study comparison technique was also used to identify convergence, contradictions and research gaps.

Quality assessment was carried out using standards related to clarity of research design, reliability, theoretical grounding and overall synchronization to the objectives of existing study (Petticrew & Roberts, 2006). Only those studies were considered that met acceptable academic standards to ensure credibility and robustness. Ethical considerations were minimal as the study entirely based on the secondary data; however, all resources were properly acknowledged following the academic standards. Therefore, we can say that this systematic and transparent review methodology provides a solid foundation for examining the significance of digital inclusion in shaping entrepreneurial opportunities for rural women located in rural Maharashtra.

Review of Literature

Aishwarya, A., & Sangeetha, S., (2025) has collected data of 264 rural women entrepreneur in Kerala regarding digital inclusion. The data shows that majority of the respondents were lacking in digital expertise. As per findings of the study shows that women are facing many challenges such as lack of infrastructure, high cost, poor network connectivity etc. while using digital media for work.

Nayak, M., & Nayak, P., (2025) studied influence of personal factors on intension of rural women in sustainable entrepreneurship in India. Through Simple Random sampling the data has been collected PAN India. The data clearly shows that individual ability, societal attitude and opportunities have positive impact on rural women's entrepreneurial intentions.

Aggarwal, M., & Johal, R., (2021) has written review article on rural women entrepreneurship. The literature till 2020 has been reviewed related to factors influencing entrepreneurship, impact of gender on entrepreneurship, various government schemes and entrepreneurship. As per the researcher maximum papers has been published in India and UK is highest in citation.

Gano-an, J., & Gempes, G., (2022) collected data of 423 women digital entrepreneur from Davao region on entrepreneur opportunities & alertness. The study reveals that alertness, opportunity & intention influences the motivation of entrepreneurs, but entrepreneurial alertness and entrepreneurial opportunities have no significant influence on entrepreneurial intention.

Govindharaj, Y., (2024) highlighted the role of technology in women empowerment and development of rural economy. The study says through Information Technology women can overcome the traditional barriers through digital literacy and foster socio-economic inclusion. But for this appropriate infrastructure and fair access for all sections of society is vital.

Lad, R., & Lokhande, S., (2017) focused the problems of women entrepreneurs of rural area through data collected via secondary data. The study examines how women can participate in national economy through proper support from family, society as well as government. Further it discusses that entrepreneur education and skill development will empower rural entrepreneurship.

Sindakis, S., & Showkat, G., (2024) conducted qualitative study of 400 respondents to investigate determinants affecting digital technology with reference to digital India program in rural context. According to results there is significant correlation between age, education and digital adoption. The researcher has concluded with until and unless the infrastructural services are strengthened it is difficult to increase digital use.

Varma, et. al. (2024) had studied use of digital platforms by women micro-entrepreneurs in Uttar Pradesh. The study depicts how social entrepreneurs can use existing digital tools in novel ways though there are lack of infrastructural resources.

Siddiqui, T., & Bhartiya, A., (2025) has highlighted the importance of digital literacy and its use by women especially from rural area. The data has been collected from the five districts of Uttar Pradesh. The major findings of the study say that due to patriarchal society, economical gap, illiteracy, accessibility & connectivity women are in a digital isolation.

Garg, S., (2025) has discussed challenges faced by women entrepreneurs in India. The review paper underlined major challenges faced by women entrepreneurs are financial issues, cultural barriers, family expectations, networking opportunities and so on. The research also suggested some majors such as skill-based training, financial support, and policy interventions to overcome these challenges.

Dhanamalar, M., & et. al. (2020) has collected data from rural & urban zone women of India on digitization impact on women empowerment. Results depicts though many tech-orientation program conducted in rural India but due to lack of infrastructure and equipment those are unsuccessful.

Kumar, S., & et. al. (2024) conducted primary research study with 250 rural women of Himachal Pradesh. The main object of the study is to find correlation between women empowerment and digital literacy. The results shown positive relation between women empowerment and digital literacy. Also, it shows significance of education for gender equality.

Banerjee, R., & et. al. (2024) has conducted study in West Bengal regarding digital literacy & women. In-depth interviews of Internet Saathi's have been conducted to know the technological access and firsthand improved life experiences. Study depicts social category and language barrier plays important role in availing various opportunities along with practical and logical difficulties.

Gurumurthy, A., (2017) has evaluated the Digital India program launched by Indian government. The study discovered the major findings such as the program failed to address grass root level gender bias faced by women. It also highlighted the socio-cultural barriers faced by marginalized women while get connected towards market. It also says that due to lack of gender focused policies and weak digital infrastructure limits the meaningful digital empowerment of women.

Above reviewed literature emphasizes challenges faced by rural women entrepreneurs specially related to infrastructure, cost and accessibility. Studies also shows that the individual abilities, family support, bias free opportunities impact positively on women entrepreneurs of rural area. No major review combines all the parameters including socio-cultural, technological, economic, and political perspectives specifically for rural Maharashtra region. Hence, this study addresses this critical gap.

Review Findings

Digital literacy refers to the ability to access, understand and use various tools of digital technologies. Specifically in rural context digital literacy plays a vital role in transforming the rural women entrepreneurs to join in digital platforms for business development. In India especially in Maharashtra many women are associated with dairy farming, food processing, art & handicrafts, tailoring as a part of micro enterprises. The rising digital tools can expand their opportunities of access of market as well as to build online customer network. This can strengthen women's financial inclusion.

The rural women from India face various constraints in digital literacy such as education, socio-cultural constraints, limited financial resources etc. Though government has introduced many initiatives such as *Digital Saksharta Abhiyan (DISHA)* and Maharashtra State Rural Livelihood Mission (MSRLM) to bridge the gaps but still many women lack exposure to structured digital learning programs.

Suggestions

Based on the available literature and existing data related to rural entrepreneurs the following suggestions are proposed:

Strengthening digital infrastructure

To promote digitization in rural areas it is at most important to strengthen the infrastructure in rural areas. Uninterrupted connectivity ensured power supply and proper accessibility should be enhanced and it may be achieved through public-private partnership.

Affordable access to technology

To reduce financial loads on women entrepreneurs it is vital to provide affordable technology. Shared digital resources can work in this regard.

Integration of local efforts and government schemes

Existing government schemes such as Digital India, Startup India can be integrated into local initiatives to enhance the capacities of entrepreneurs as well as to increase the accessibility of resources.

Promotion of digital literacy

Basic and advanced level digital literacy programs should be conducted through Panchayat Raj System at grass root level in a vernacular medium. This will expand the scope of rural women entrepreneur to get more acquainted about digital applications used for business specially.

Family and community level support system

Socio-cultural often limits the digital engagement of rural women therefore strong sensitization programs requires to work on the perception of society in general. Community based organizations along with local leaders can conduct various community awareness programs to build bias free environment for women

Conclusion

Digital literacy is the key component to enhance the success rate of women entrepreneur of rural Maharashtra. Women entrepreneur of rural area are facing many challenges including inadequate infrastructure, socio-cultural restrictions, less awareness to name a few. To overcome these challenges comprehensive efforts should be made from top to bottom. Strengthening digital skills of women entrepreneur can substantially increase the business efficiency, decision making and overall empowerment of rural women. Collective efforts from government, educators, community led organizations, local leaders can enable digital ecosystem where rural women entrepreneurs can thrive.

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Reorienting India's Mental Health System: A Review of Capacity-Building Needs for Community-Led Care

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Abstract

India continues to face a disproportionate mental health burden, accounting for nearly 14% of the world's mental disorders and 4.7% of DALYs (Disability-Adjusted Life Year), as highlighted by the Global Burden of Disease Study. The National Mental Health Survey (2015–16) further reveals a severe treatment gap of 70–92% across common mental disorders, highlighting the limitations of India's specialist-centric model. With only 0.75 psychiatrists, 0.07 clinical psychologists, and 0.07 psychiatric social workers per 100,000 population, the available workforce remains far below WHO norms, especially in rural regions where more than 65% of India's population resides. This secondary-data review examines the capacity-building needs for transitioning toward a community-led mental health system. Evidence from NMHS, NFHS-5, NSSO health rounds, DMHP evaluations, and WHO guidelines points to major systemic barriers, including weak integration of mental health into primary care, limited CHW training, fragmented referral pathways, and inadequate mental health indicators in national health information systems. Only 29% of Health and Wellness Centres currently offer basic mental health services, and just 10–12% of ASHAs and ANMs have received structured training. Persistent stigma continues to hinder access, with nearly 49% of individuals reluctant to seek care due to fear of judgment. The paper will review the need for standardized training, supportive supervision, digital referral mechanisms, which will focus on the integral and multi-sectoral approach in building community-level capacity. It will help in understanding gaps in treatment, accessibility, equitability and scalability of mental health care across India.

Keywords: Mental Health Workforce, Treatment Gap, Community-Based Mental Health, Demographic dividend, Digital Health Integration; AI-Enabled Decision Support, Rural Mental Health Disparities, District Mental Health Programme (DMHP).

Introduction

India's mental health scenery reflects a wide and persistent gap between need, service availability, and system readiness. The National Mental Health Survey (NMHS, 2015-16)

reported that 10.6% of adults live with a diagnosable mental disorder, 150 million people requiring active care. However, the treatment gap ranges from (70%-92%) for common mental disorders, which highlights chronic underutilization of services. The national reports indicate continuing concerns; the National Health Profile (2023) recorded a 23% rise in outpatient mental health visits in government facilities post-COVID-19, Global Burden of Disease Study (2021) estimated that mental disorders account for 4.7% of total DALYs in India. A meta-analysis by Dhiman et al. (2023) further showed increasing prevalence trends over the last two decades, with pooled depression at 12.4% and anxiety disorders at 11.6%.

According to data from the Ministry of Health and Family Welfare,2024; India continues to face a severe shortage of mental health professionals. The availability of psychiatrists, clinical psychologists, and psychiatric social workers remains far below global expectations, highlighting a significant gap in specialist manpower. This shortage is further aggravated by the uneven demographic distribution of services. While a majority of the country's population resides in rural areas, mental health professionals are largely concentrated in cities, creating a pronounced rural–urban divide in service access. Although the District Mental Health Programme has expanded across most districts in the country, many regions still lack fully functional units, and considerable differences persist in terms of service quality and coverage. WHO's Comprehensive Mental Health Action Plan (2013-2030), India's transition remains slow. Mental health service delivery continues to depend heavily on psychiatrists, district hospitals, and tertiary centers, leaving primary care providers and communities underprepared. Only 29% of Health and Wellness Centers (HWCs) report offering basic mental health services (NHM, 2023), and less than 12% of ASHAs and ANMs have received structured mental health training. Stigma also remains a barrier, with the NFHS-5 (2021) indicating that nearly half of respondents hold negative beliefs about seeking help for psychological distress. The mismatch between need and system capacity, India must adopt a community-led service model emphasizing task shifting, capacity building, digital tools and inclusion with AI, primary care integration, and multi-sectoral collaboration. Using secondary data, this paper examines the reforms required to reorient India's mental health system toward scalable and sustainable community-led care.

Methodology

The review included the National Mental Health Survey (NMHS, 2015-16), National Family Health Survey (NFHS-5), NSSO 75th Round on health service utilization, and District Mental Health Programme (DMHP) evaluation reports issued by the Ministry of Health and Family Welfare (MoHFW). Published peer-reviewed literature from 2005-2025 on community mental health, task shifting, youth mental health, and digital mental health interventions was screened to identify long-term trends and system gaps. To ensure alignment with national policy directions, the study incorporates information disseminated through the Press Information Bureau (PIB) on mental health initiatives, Tele-MANAS expansion (2022–2024), digital infrastructure under Ayushman Bharat, and updates on National Tele-Mental Health resources, WHO Mental Health Gap Action Programme (mhGAP) of India's progress toward global standards of decentralized community mental health care, As digital integration data from the Comprehensive Modular Survey: Telecom (January-March 2025) released by the Ministry of Statistics

and Programme Implementation (MoSPI). The survey reports that nearly 82% of Indians aged 15 years and above used a mobile phone at least once in the last three months for personal calls or accessing the internet, with rural usage reaching 74% and urban usage 92%. These indicators were analyzed to assess the feasibility of AI-enabled mental health interventions-such as tele-counselling, chat-based screening, app-based psychoeducation, and remote supervision of frontline workers, particularly in rural and underserved areas. The telecom data also informs the study’s objective of understanding how digital penetration can support community-level task shifting by enabling ASHAs, ANMs, and youth volunteers to access decision-support tools and remote specialist guidance.

Discussion

India’s Mental Health Scenario -

This table reflects data of NMHS (2015–16), NFHS-5, DMHP evaluations, WHO estimates, NMC workforce data, and telecom access surveys, highlights a complex and evolving public health challenge, epidemiological awareness and service provisions have expanded, population growth, rural inequities, digital divides, and systemic blocks persistently widen the treatment gap.

Table No.1

Domain	Indicators	Year	Trends	Interpretation for Policy & Research	Primary Source
Population Burden	Adult mental disorder prevalence	2015-16	10.6% current; 13.7% lifetime	High lifetime burden signals persistent unmet need	NMHS
	Youth onset of disorders	2020-25	50% by age 14; 75% by 24	Youth-focused interventions urgently needed	WHO
	DALY burden	2025	2443 DALYs/10,000	Indicates major loss of healthy life years	WHO
	Suicide rate	2025	21.1/100,000	Among world’s highest, a national priority	WHO
Treatment Gap	Overall treatment gap	2015-16	70-92%	Severe under-treatment across all disorders	NMHS
	Stigma & negative	2021	~50% respondents	Social barriers	NFHS5

	attitudes			blocking early care	
	health utilization rise	2023	+23% post-COVID	Growing service demand unmet by supply	NHP 2023
Workforce Shortage	Psychiatrists per 100,000	2024	0.75 (WHO norm 3)	Critical workforce deficit	MoHFW/WHO
	Clinical psychologists & PSWs	2024	0.07 each	Severe shortage limits	MoHFW
	Workforce distribution	2020	80% urban	Rural areas structurally deprived	NSSO
Community Service Gaps	DMHP district coverage	2023	700/766 districts	Expansion good, but uneven functionality	DMHP
	HWCs offering MH services	2023	29%	Limited integration into primary care	NHM
	ASHAs/ANMs trained	2024	<12%	Task-shifting currently unviable	NHM
	Youth MH service access	2024	Poor, inconsistent	Contradiction: High youth prevalence vs weak services	Economic Survey
System Blocks	Essential psychotropics availability	2014–25	Frequent shortages	Weak supply chain undermines	DMHP
	Referral system strength	2014–25	Weak	Limits continuity of care	DMHP
	Digital integration in HMIS	2025	Low	Data invisibility hinders planning	MoHFW
	Rural staffing stability	2014–25	Low; frequent transfers	Reduced continuity & service quality	DMHP

Digital & AI	Mobile phone usage (last 3 months)	2025	High (>70% in many states)	Strong opportunity for AI-based interventions	CMS Survey
	Tele-MANAS scale-up	2024-25	Active but uneven	Potential engine for rural mental health	PIB
	Digital public health mission alignment	2025	Partial	Needed for unified mental health tracking	MoHFW
	AI for early screening	2025	High feasibility	Digital innovations can offset workforce shortages	CMS + Research

The NMHS estimated that approximately 10-11% of adults suffer from mental disorders, which translates into ~150 million individuals requiring active care. With India's youth constituting nearly 65% of its population, the burden is disproportionately high among adolescents and young adults who report rising levels of anxiety, substance use, suicide attempts, and behavioral disorders (NFHS-5, SRS 2023). The rural population, accounting for nearly 65%, experiences a larger unmet need due to service inaccessibility, stigma, and socio-economic vulnerabilities. The demographic imperative is therefore not merely numerical. It demands a mental health system include to rural youth, migrant workers, women, and socio-economically marginalized groups.

The treatment gap remains between 70-92% for major mental disorders despite decade-long policy advancements. NFHS-5 revealed low help-seeking behavior, limited awareness of mental illness, and high dependence on informal providers in rural settings. DMHP evaluations (2020-24) further showed inconsistent district-level implementation, shortage of case managers, and inadequate follow-up services. The treatment gap remains influenced by structural factors such as geographical accessibility, lack of trained personnel, limited outreach, and minimal integration of mental health into primary care. NMC/RCI data and WHO projections reveal persistent workforce deficits-psychiatrist availability at 0.3 per lakh, clinical psychologists at 0.07 per lakh, and psychiatric social workers below 0.05 per lakh-far below global recommendations. Rural-urban disparities showed the majority of specialists remain concentrated in tertiary-care urban hospitals, leaving rural PHCs and CHCs without expert support shortage. The limited number of psychiatric social workers further restricts psychosocial rehabilitation, community mobilization, and family counselling-critical needs in rural mental health care. System-level constraints continue to delay effective decentralization of mental health service. These include the uneven coordination between health, social justice, and education sectors, inadequate funding at district level and delays in DMHP deployment, limited referral linkages between primary, secondary, and tertiary facilities, insufficient monitoring, data systems, and outcome evaluation, high administrative workload,

reducing time for clinical and community work. These blocks reinforce urban concentration of services while weakening rural availability.

Telecom indicators from the Comprehensive Modular Survey (January–March 2025) show that over 92% of Indians used a mobile phone at least once in the past three months, and 86% accessed the internet, including substantial penetration in rural areas. This digital spread significantly enhances feasibility for AI-enabled mental health screening, tele-psychiatry, chatbot-based counselling, adherence tracking, relapse alerts, and community-level issues in mental health.

Conclusion

India's mental health system stands at a critical transition point, followed by a high burden of disorders, a wide treatment gap, and significant workforce shortages, with rural populations experiencing the greatest deficits due to weak infrastructure, limited specialist availability, and inadequate community outreach. However, the rapid expansion of digital connectivity provides a unique opportunity to strengthen decentralized care in rural and vulnerable areas. A youth-centered, digitally enabled, community-driven model-integrating AI-supported tools with DMHP, Health & Wellness Centres, and ASHA, Anganwadi, Balwadi, panchayat leaders' network can effectively bridge structural inequities. A model requires prioritizing rural mental health infrastructure through time-bound DMHP expansion, increasing seats and funding for psychiatric social work, clinical psychology, and psychiatric nursing deploying. AI-enabled decision-support systems in PHCs and CHCs can guide frontline health workers in screening, risk assessment, and basic management of mental health conditions, even when specialists are unavailable. These tools provide standardized protocols and real-time clinical suggestions, reducing errors and improving early detection. Incentive-based rural postings—combined with regular tele-supervision from district or tertiary mental health professionals, can improve retention of trained staff in underserved areas. These measures strengthen rural mental health services by ensuring continuous guidance, better decision-making, and sustained human resource availability. Strengthening intersectoral coordination across NIMHANS, MoHFW, Education, Youth Affairs, and Social Justice; launching rural youth mental health campaigns through schools, colleges in a frequent gap, and including Panchayats, and building community-based peer support and digital counselling networks are equally essential. Scaling Tele-MANAS, integrating AI-based triage tools, and creating a national mental health digital dashboard will enhance real-time monitoring and service continuity. Ensuring data privacy, ethical safeguards, culturally sensitive chatbot design, multilingual and promoting digital mental health literacy, awareness especially among women and rural population to reduce stigma which will further support equitable, accessible, and future-ready mental health care across India.

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Developing an Operational Checklist to Enhance Governance, Compliance, and Institutional Effectiveness in Indian NGOs

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Abstract

Non-Governmental Organizations (NGOs) in India play a pivotal role in advancing development objectives across sectors such as health, education, social protection, and community development. Despite their contributions, many NGOs encounter persistent challenges in maintaining systematic documentation, ensuring statutory compliance, strengthening governance systems, and demonstrating institutional effectiveness. The absence of a standardized national framework for assessing organizational readiness further compounds these challenges, particularly for small and mid-sized NGOs.

To address this gap, this study documents the development of a comprehensive operational checklist designed to support NGOs in evaluating and strengthening their institutional systems. The checklist spans ten domains central to NGO functioning: legal registration and governing documents, regulatory compliance, financial management and accounting, governance and board functioning, human resources and labour law compliance, program management and impact, transparency and public disclosure, fundraising and donor management, risk management and legal dispute handling, and data protection and cybersecurity.

The checklist was developed through a multi-method iterative design process comprising a systematic desk review of statutory requirements and governance frameworks, followed by reviews by an expert team representing legal, financial, and educational research perspectives. Thereafter, practitioner feedback was gathered through a consultation forum with 22 NGO representatives, ensuring relevance and contextual applicability.

While the checklist has undergone conceptual development and initial validation, field implementation and testing remain essential next steps to assess its usability, adaptability, and impact on organizational practices. The framework has potential value not only as a

self-assessment tool for NGOs but also as a due diligence resource for donors and an evaluative aid for external reviewers. By promoting standardization, documentation quality, and evidence-based governance, the checklist contributes to strengthening institutional effectiveness within India's NGO ecosystem.

Keywords: NGOs, Accountability, Transparency, Governance, Compliance, Institutional Effectiveness, Self-Assessment Framework, Sustainable Development, Viksit Bharat @2047

1.Introduction

Aligned with the Government of India's "*Viksit Bharat*" (*Developed India*) vision, which seeks to transform the country into a developed nation by 2047, the 100th anniversary of independence, the national development agenda emphasizes growth that is economically resilient, environmentally responsible, and socially just (Gupta, 2025). Within this evolving landscape, Non-Governmental Organizations (NGOs) have historically played a central role in advancing development and broadening democratic engagement in India. Strengthening transparent, accountable, and well-governed NGOs is therefore essential to ensuring that marginalized communities benefit meaningfully from this developmental trajectory.

The expansion of India's civil society ecosystem is evident in platforms such as NGO-DARPAN, introduced in 2015 as an official interface between NGOs and the government. Registration on this portal is now mandatory for organizations seeking Foreign Contribution Regulation Act (FCRA) clearance or government funding, and the platform currently lists more than 4.8 lakh entities, including trusts, societies, and Section 8 companies. This growth is reinforced by rising Corporate Social Responsibility (CSR) investments, with CSR expenditure reaching ₹34,908 crore in 2023–24 (National CSR Exchange Portal, 2025).

Despite this proliferation, the organizational maturity, documentation practices, and compliance capacities of NGOs vary widely. The Bharat NGO Report (Fulcrum, 2025) highlights systemic challenges that many NGOs face, including gaps in project documentation, evidence collection, data management, fundraising, and human resource administration. These challenges are occurring alongside rapidly intensifying donor expectations. Recent CSR evidence from 301 leading companies in India shows that 59% of funding partners prioritise transparency and accountability, while 52% expect data-driven impact assessments and 54% seek models that are scalable and replicable (CSRBOX, 2024). Yet implementing partner NGOs face substantial barriers to meeting these expectations: 47% struggle with measuring intangible outcomes and 36% encounter difficulties in collecting accurate data (CSRBOX, 2024). Data management practices also remain inconsistent, with 72% of NGOs either lacking a structured data management system or rely on internal, customised systems as per donor requirements. (CSRBOX, 2024).

The complexity of the regulatory environment further compounds these challenges. NGOs are required to comply with multiple layers of legislation, including the Income Tax Act, state-level trust and society laws, labour regulations, and the FCRA, creating significant

administrative burdens and raising heightened expectations of accountability and legitimacy (Gupta, 2020).

Accountability in NGOs ranges from quantitative financial disclosures reporting income and expenditure, to qualitative narrative disclosures that describe organizational activities, outcomes, and performance and these modes of accountability are communicated through various mechanisms, including statutory annual reports, voluntary impact reports, organizational websites, and social media platforms (Yasmin & Ghafran, 2020).

Despite these challenges and the diversity of accountability practices and information sources, India currently lacks a standardized national framework to support NGOs in assessing their organizational readiness across essential institutional functions, including legal and regulatory adherence, governance and financial management, human resource and operational systems, programmatic accountability, public transparency, and risk and data management. Existing assessment tools tend to be donor-driven or designed for larger and better-resourced organizations, limiting their relevance for the diverse and predominantly small and medium-sized NGOs that constitute much of the sector. As a result, many NGOs remain uncertain about which records to maintain, which policies to formalize, and how to evaluate their institutional systems in a comprehensive manner.

To address this gap, the authors have developed an Operational Checklist for Indian NGOs, designed as a practical and contextually grounded tool to strengthen transparency, accountability, governance and institutional effectiveness. Organized across ten domains, the checklist provides measurable criteria that NGOs can use for internal assessment and institutional strengthening.

This paper presents the development, structure, and preliminary validation of this checklist, and discusses its implications for sustainable and participatory development in India. By documenting the rationale and methodology behind the tool, the paper contributes to ongoing scholarly and practitioner debates on accountability, institutional capacity, and governance within NGOs. The paper concludes with an academic invitation to NGOs, CSR organisations, foundations, community-based organisations, and other civil society actors to apply the checklist and collaborate through shared learning and feedback.

2.Methodology

2.1 Study Design and Conceptual Orientation

The development of the operational checklist employed a multi-method, iterative design that combined a structured document review, expert consultations, and practitioner feedback. The conceptual orientation of the study was grounded in established literature on NGO governance, compliance frameworks, and organizational development (Jumde & Kumar, 2022; Mishra et al., 2005; Niyireba et al., 2025), which provided a theoretical basis for identifying the core domains of institutional performance. The overarching aim was to create a tool that integrates statutory requirements with practical governance considerations, supporting both regulatory adherence and organizational strengthening. The checklist was intentionally designed to be accessible and applicable to NGOs of varying size, structure, and operational capacity.

2.2 Desk Review

A systematic desk review was undertaken to map the statutory, regulatory, and governance requirements applicable to NGOs in India. This included an examination of key legislation such as the Foreign Contribution (Regulation) Act (FCRA), the Income Tax Act (particularly provisions relating to 12AB and 80G registrations), the Companies Act and its CSR Rules, as well as state-level trust and society registration laws. Relevant labour regulations were also reviewed, including the Employees' Provident Fund and Miscellaneous Provisions Act (EPF), the Employees' State Insurance Act (ESI), and the Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act (POSH).

In addition to statutory requirements, the review covered donor and audit frameworks, including CSR due diligence templates, international philanthropic assessment formats, and program evaluation guidelines. The academic literature on governance, accountability, capacity building and organizational development was also examined to establish the conceptual basis for the checklist. Insights from the desk review informed the categorization of domains and sub-domains, the formulation of indicators, and the overall structure of the checklist.

2.3 Expert Consultations

Following the desk review, a three-member expert team comprising an educational researcher, a financial specialist, and a legal expert collaboratively developed the initial version of the checklist. This multidisciplinary team synthesized statutory requirements, governance principles, program management and organizational development considerations into a coherent draft framework.

The draft checklist was then shared with representatives from 22 NGOs in an open consultation forum to obtain practitioner feedback on its structure, clarity, and contextual relevance. The feedback process focused on presenting the checklist to the NGO representatives, explaining the purpose and content of the items, and soliciting their comments on the items.

2.4 Drafting and Internal Validation

Based on the inputs received during the consultation, the checklist items were reviewed and refined to enhance their coherence and practical usefulness. The research team then conducted an internal review to ensure consistency and alignment with established practices in organizational development and with the broader standards in governance, compliance, program management, and documentation systems.

2.5 Ethical Considerations

As the research involved consultations and feedback rather than human subjects research, formal ethics approval was not required. However, all participants were informed of the purpose of the study.

3. Results

The finalized Operational Checklist for Indian NGOs is presented in Appendix 1.1.

3.1 Checklist Structure and Domain Summary

The checklist is designed as a structured, hierarchical tool that enables NGOs to assess their institutional systems in a systematic and evidence-based manner. It is organized into ten major domains, each corresponding to a core dimension of governance, compliance, and organizational functioning:

1. Legal Registration and Governing Documents
2. Regulatory Compliance
3. Financial Management and Accounting
4. Governance and Board Functioning
5. Human Resources and Labour Law Compliance
6. Program Management and Impact
7. Transparency and Public Disclosure
8. Fundraising and Donor Management
9. Risk Management and Legal Dispute Handling
10. Data Protection and Cybersecurity

3.2 Checklist Structure

Each domain is further divided into sub-domains, which group together related institutional requirements. For every sub-domain, the checklist specifies:

- *Requirement*: A precise statement outlining what the NGO must demonstrate. For example, maintaining valid registration certificates, filing statutory returns, adopting HR policies, or ensuring data protection safeguards.
- *Evidence / Documentation Needed*: The records or documents that verify compliance with the requirement (e.g., registration deeds, audit reports, policy documents, minutes, registers).
- *Status (Yes / No / In Progress)*: A simple scoring mechanism that allows organizations to self-assess their level of compliance.
- *Remarks and Next Steps*: A space for noting gaps, assigning responsibilities, and outlining the corrective actions needed for improvement.

3.3 Scope and Coverage

Across the ten domains, the checklist comprises 54 measurable indicators, providing NGOs with a comprehensive lens to assess both mandatory compliance obligations and broader governance and operational systems. Its structured format makes it accessible to NGOs of varying sizes and capacities, supporting both immediate self-assessment and long-term institutional strengthening.

4. Discussion

4.1 Strengthening Governance for Participatory and Sustainable Development

Sustainable development requires the integration of environmental, social, and economic considerations into organizational decision-making processes (Emas, 2015; Harris, 2000). Complementing this perspective, Sari et al. (2018) highlight that participatory development rests on five foundational principles: “trust, equality, democratic engagement, authenticity, and mutual responsibility”. Effective development programs therefore require support not only from central and local governments but also from

community actors, underpinned by adequate institutional and human capacities. These principles, however, can only take root within organizations that uphold transparency, accountability, and mechanisms for meaningful internal dialogue. Strengthened governance systems are essential for enabling such environments. The operational checklist developed in this study contributes to this objective by clarifying institutional processes and promoting consistency in internal governance. In doing so, it helps create the organizational conditions necessary for sustainable and participatory development to flourish, both within NGOs and in their engagement with the communities they serve.

4.2 Addressing Gaps in Existing NGO Governance Tools

Although governance and compliance challenges within NGOs are well documented in the literature, few practical tools translate these concerns into structured, measurable frameworks suitable for the diversity of Indian NGOs. The checklist presented here responds to this gap by operationalizing complex statutory, regulatory, and management requirements into accessible indicators. It further provides NGOs, donors and evaluators with a one-stop standardized reference point that enhances organizational maturity, reduces compliance-related risks, enables evidence-based decision-making, and strengthens negotiation capacity with donors and government entities. These contributions are particularly significant for NGOs that contend with high staff turnover, limited administrative resources, and inconsistent managerial practices.

4.3 Opportunities for Digital Integration

The usefulness of the checklist may be further enhanced through digital integration. A digitized platform could automate scoring, generate alerts for pending or upcoming deadlines, centralize document storage, and provide standardized policy templates. Such features would lower administrative burdens and support NGOs in maintaining consistent and up-to-date compliance systems, thereby increasing the practicality and reach of the tool.

4.4 Broader Applicability Across the Development Ecosystem

While the checklist has been designed primarily for NGOs, its relevance extends to a wider ecosystem of actors involved in institutional strengthening and accountability. Donors, CSR units, philanthropic foundations, accreditation bodies, and due-diligence agencies could use the checklist as a transparent and standardized framework for organizational assessment. The availability of a common reference tool has the potential to harmonize expectations across the sector, promote coherence in governance practices, and contribute to a stronger and more accountable civil society landscape in India.

4.5 Limitations and Next Steps

The checklist is intended as a practical self-assessment tool but does not substitute for professional legal or financial advice. Smaller NGOs, in particular, may require targeted training or technical support to fully implement certain domains, especially those involving statutory compliance or digital documentation systems. Furthermore, the current version is tailored to the Indian regulatory environment and may require contextual adaptation for use in other South Asian countries with different legal frameworks and institutional norms.

An important limitation relates to the dynamic nature of the regulatory and policy landscape governing NGOs in India. As legislation, compliance procedures, and government reporting requirements evolve, the types of documentation expected from NGOs will also shift. Consequently, the checklist cannot remain static; periodic revisions will be essential to ensure continued relevance and accuracy. The digitization pathway discussed earlier offers a feasible mechanism for enabling such updates by allowing real-time modifications, automated alerts, and modular revisions without requiring NGOs to reconstruct their documentation systems.

While the development phase of the checklist has been completed, the next step involves field implementation and testing across a diverse set of NGOs. This applied phase will be critical for assessing usability, clarity, and adaptability, as well as evaluating the tool's impact on organizational governance, compliance practices, and institutional strengthening. The insights gained will inform subsequent refinements and guide future iterations of the checklist.

6. Conclusions

NGOs in India often emerge from the collective vision and commitment of a small group of individuals motivated by a shared social purpose. As these organizations evolve, formal systems and processes typically develop more slowly than programmatic activities. Consequently, it is common to find NGOs delivering high-quality work on the ground while lacking the documentation practices and institutional structures necessary to demonstrate this work effectively. In many cases, dedicated and ethical organizational leaders are unable to translate their integrity into formal processes, largely due to the absence of clear guidance and standardized frameworks.

The academic literature further reveals that assessments of NGO performance are frequently shaped by ideological perspectives rather than empirical evidence. Scholars note that discussions on NGO effectiveness, accountability, and impact often rely on normative assumptions or political positions instead of systematic data (Kareithi & Lund, 2021). This recognition emphasizes the need for rigorous, evidence-based approaches to understanding how NGOs function institutionally and how their internal systems influence outcomes.

NGOs are widely known for their core roles in providing essential services to marginalized communities and advocating for policy change. Over time, their activities have expanded to include specialized functions such as emergency relief, democracy promotion, conflict resolution, human rights protection, cultural preservation, environmental advocacy, policy research, and knowledge dissemination (Lewis, Kanji, & Themudo, 2020). Managing this increasingly diverse portfolio of responsibilities while simultaneously addressing regulatory requirements and strengthening internal systems presents substantial operational challenges for many organizations. Accountability encompasses both the external obligation of organizations to justify their actions and the internal responsibility to continuously examine and refine their mission, goals, and performance (Ebrahim 2003).

This study addresses these challenges by documenting the development of a comprehensive operational checklist designed to enhance governance, compliance, and accountability within Indian NGOs. Informed by a systematic desk review, expert collaboration, and practitioner feedback, the checklist provides a practical self-assessment tool accessible to NGOs of varying sizes and sectors. Its ten domains capture the multidimensional nature of NGO governance, integrating statutory requirements, organizational development principles, and participatory development perspectives.

7. Academic Invitation for Sector Engagement

The authors extend an academic invitation to NGOs, community-based organizations, CSR entities, foundations, and wider civil society networks across India to apply this checklist within their institutional settings. We encourage organizations to share their reflections, challenges, and recommendations arising from its use, as such insights will be essential for refining the tool and enhancing its applicability. Through sustained engagement and collective learning, practitioners can contribute to strengthening accountability and governance practices across the sector and help build a more transparent, resilient, and participatory civil society ecosystem.

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Appendix 1.1. Operational Checklist for Indian NGOs

Domain	No	Sub-domain	Requirement	Status (Y/N/ In Progress)	Remarks & Next Steps
Legal Registration and Governing Documents	1	Registration under Societies/Trust/Companies Act	Valid and current registration certificate.		
	2	PAN and TAN	PAN and TAN obtained.		
	3	Governing documents	MoA/Trust Deed/Articles updated and filed.		
Regulatory Compliance	4	12AB Registration	Valid registration under Section 12AB.		
	5	80G Certificate	Valid 80G certificate for tax-deductible donations.		
	6	Annual Return Filing	ITR-7 filed on time.		
	7	Audit Report	Form 10B/10BB filed as applicable.		
	8	TDS Compliance	TDS deducted and returns filed.		
	9	FCRA Registration	Valid registration/prior permission under FCRA, designated bank account, donor commitment letters, affidavits.		
	10	Annual FC-4 Return	FC-4 filed on time.		
	11	GST Compliance	GST Registration /Returns and exemption requirements / liability payments, if any		
	1	Quarterly	Quarterly foreign		

	2	Disclosure	contribution updates on NGO DARPAN.		
Financial Management and Accounting	1 3	Audited Financials	Annual audit completed by a Chartered Accountant.		
	1 4	Segregation of Funds	Separate accounts for corpus, restricted, FCRA, etc.		
	1 5	Utilisation of Funds	Track and Record utilisation of funds for the said purpose (no personal / political / religious (FCRA funds) use)		
	1 6	Utilisation of Funds	Map spending to the project objectives /review the governance parameters in approval process		
	1 7	Process / Controls	Process / Controls for receipt - utilisation - reporting of funds		
	1 8	Banks /Account Balances	Confirmations / Reconciliation of Bank / Other Account Balances		
	1 9	Assets / Liabilities	Verification of Assets		
	2 0	Statutory and Management Reporting	Financial Statements and MIS Reports		
	2 1	Budgeting and Controls	Budget planning and financial control processes in place.		
Governance and Board Functioning	2 2	Board Constitution	Board formed as per regulations.		
	2 3	Records Retention	Document storage policies, renewal of certifications policy.		
	2 4	Conflict of Interest	Conflict of Interest policy in place.		
	2 5	Board Meetings	Regular board meetings held and minutes recorded.		
	2 6	Succession Planning	Leadership and succession plan documented.		
Human Resources and Labour Law Compliance	2 7	Employment Contracts	All employees have valid contracts.		
	2 8	Employee Policies	Policies for Employees for Leave, Outstation, Expense Claims etc.		
	2	EPF/ESI/Gratuity	Contributions paid and		

	9	Compliance	returns filed.		
	30	POSH Policy	POSH committee constituted and policy implemented.		
	31	Staff Development	Training and capacity building for staff in place.		
	32	Volunteer/Intern Management	Volunteer and intern roles documented, managed, and evaluated.		
Program Management and Impact	33	Vision & Strategy Alignment	Vision, mission, and objectives are clear. Programs and activities are aligned to stated objectives and reviewed periodically.		
	34	Program Planning & Needs Assessment	Programs are developed based on assessed needs. Programs have defined goals, target groups, and documented plans or SOPs. Theory of change or logic models are developed for major interventions.		
	35	Monitoring and Evaluation	Key performance indicators (KPIs) are set and tracked regularly to assess impact. Baseline and endline assessments conducted for major projects.		
	36	Evidence of Results	Reports, case studies, photos/videos, and other media show program achievements.		
	37	Learning & Improvement	Lessons learned are reviewed and used to adapt or improve programs.		
	38	Program Reporting	Regular internal and external program reports prepared and reviewed.		
	39	Stakeholder and beneficiary feedback	Stakeholder and beneficiary feedback mechanisms in place.		
Transparency and Public Disclosure	40	NGO DARPAN Registration	Registered and profile updated.		
	41	Annual Report & Disclosures	Audited financials and annual reports publicly disclosed.		

	4 2	Website Disclosures	Board, programs, and financials disclosed on the official website.		
	4 3	Evidence of Achievements	Multimedia, reports, stories of change, and other evidence of achievements shared via website or public documents.		
Fundraising and Donor Management	4 4	Donation Receipts	80G compliant receipts issued and List of Beneficiaries		
	4 5	Donor Agreements & UC	Agreements signed and utilization certificates shared.		
	4 6	Tax & Donations	Anonymous donation limits, proper utilization framework.		
	4 7	Donor Communication	Regular updates and reports provided to donors.		
Risk Management and Legal Dispute Handling	4 8	Risk & AML Controls	Transaction monitoring, donor due diligence.		
	4 9	Risk Register	Risk management plan or matrix in place.		
	5 0	Insurance	Office, assets, and staff insurance policies maintained.		
	5 1	Litigation Tracker	Legal issues and disputes documented and tracked.		
Data Protection and Cyber Security	5 2	Data Privacy Policy	Policy in place and followed.		
	5 3	Cybersecurity Practices	Secure systems, password protocols, backups maintained.		
	5 4	Utilisation of Funds	Data backup and disaster recovery protocols in place.		

Educational Realities of Children with Disabilities in Rural India

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Abstract

Children with disabilities (CWDs) in India continue to face significant barriers in accessing equitable and meaningful education, despite strong legal mandates such as the Rights of Persons with Disabilities (RPwD) Act 2016 and the National Education Policy (NEP) 2020. This study investigates the educational conditions of CWDs in rural Dharwad district, Karnataka, using primary survey data from 400 parents. The research examines parental awareness of disability rights, teacher preparedness, school accessibility, availability of rehabilitative services, and systemic and attitudinal barriers. Findings reveal that while school enrolment has increased, true inclusion is undermined by inadequate teacher training, poor infrastructure, limited access to medical and rehabilitative support, and persistent social stigma. The study emphasizes that inclusion requires a shift from mere physical presence to full participation and meaningful learning. Recommendations include strengthening community awareness, improving teacher capacities, investing in accessible infrastructure, and promoting inter-departmental coordination.

Keywords: Inclusive education, children with disabilities, rural India, RPwD Act, NEP 2020, accessibility, teacher preparedness, parental perceptions.

Introduction

Education is globally recognized as a fundamental human right and a core component of child rights, affirmed through instruments such as the Universal Declaration of Human Rights (1948) and the UN Convention on the Rights of the Child (1989). India's commitment to the Sustainable Development Goals (SDGs)—particularly SDG 4: Ensure inclusive and equitable quality education for all—further reinforces the obligation to provide accessible, meaningful, and equitable learning opportunities to every child, including those with disabilities.

Despite these strong legal and moral frameworks, the reality on the ground paints a different picture. For millions of children with disabilities, education remains incomplete,

inconsistent, and often inaccessible, especially in rural and low-resource settings. National policies such as the RPwD Act 2016, the Right to Education Act, and initiatives under Samagra Shiksha acknowledge inclusive education as a priority, yet implementation remains fragmented. The gap between policy commitments and lived experiences is so wide that achieving true inclusion seems neither accomplished today nor realistically within immediate reach unless systemic, infrastructural, and attitudinal barriers are urgently addressed. This disconnect calls for a critical examination of the current educational landscape and the persistent factors that continue to exclude children with disabilities from fully enjoying their right to education

Review of Literature

Conceptual Foundations of Inclusive Education

UNESCO has been central to defining and promoting inclusive education. The UNESCO Salamanca Statement (1994) first asserted that schools should accommodate all children regardless of disability, background, or ability. More recently, the UNESCO Global Education Monitoring (GEM) Report 2020: *Inclusion and Education* emphasizes that inclusion is not merely about enrolling learners but requires removing physical, pedagogical, and attitudinal barriers that prevent full participation (UNESCO, 2020).

Slee (2011), in *The Irregular School*, argues that inclusive education must challenge and transform structural inequalities embedded within schooling systems rather than simply place children with disabilities into unchanged mainstream classrooms. His critique positions inclusion as a systemic reform project, not an add-on service.

In the Indian context, Singal (2006, 2010) notes that although policy rhetoric strongly supports inclusion, practices often remain limited by resource constraints, institutional inertia, and deeply embedded societal attitudes toward disability.

Infrastructural and Material Barriers

The infrastructure of many Indian schools continues to pose challenges for children with disabilities. The Annual Status of Education Report (ASER) consistently documents gaps in school facilities, including inaccessible toilets, absence of ramps, and lack of assistive learning material in government schools (ASER Centre, 2017; 2022).

Rao (2017), in a study on disability and schooling in Andhra Pradesh, highlighted significant shortcomings in environmental accessibility, including non-functional ramps and toilets, poorly designed classrooms, and lack of mobility aids. Similarly, Nair (2010) argued that infrastructural deficits disproportionately exclude children with physical and visual impairments.

The World Bank (2007) report *People with Disabilities in India: From Commitments to Outcomes* also documented low levels of school accessibility, noting that architectural barriers remain one of the leading reasons for non-enrolment among children with disabilities.

Systemic and Policy Barriers

Even though the Right to Education Act (2009) and the Rights of Persons with Disabilities Act (2016) mandate inclusive and barrier-free schooling, implementation gaps

persist. Jha (2002), in a study commissioned for UNESCO, found that while India has robust policies, coordination between departments (education, health, social justice) remains weak, limiting effective service delivery.

Further, the GEM Report (2020) highlights that India's low investment in support services—such as resource rooms, special educators, and accessible teaching-learning materials—constrains the realization of inclusive education.

Teacher Preparedness and Classroom Practices

Mukhopadhyay and Mani (2002) documented that general classroom teachers often lacked training in special needs education and had minimal access to pedagogical resources tailored for diverse learners.

Singal (2008), in her longitudinal work, emphasized that teacher preparedness is the single strongest determinant of whether inclusive policies translate into meaningful classroom participation for children with disabilities.

Family and Community Influences on School Participation

Grover and Singh (2002) found that many rural parents lacked information about disability rights, government entitlements, or available support services, leading to delayed school entry or irregular attendance.

Agarwal and Taneja (2005) documented that stigma within families and communities remains a major deterrent, particularly for girls with disabilities, who face gendered barriers in addition to disability-related ones.

The World Report on Disability (WHO & World Bank, 2011) also notes that parental perceptions—shaped by cultural beliefs, costs of care, and fears of discrimination—determine whether children with disabilities are enrolled in schools, especially in low-income settings.

Access to Rehabilitation and Support Services

The WHO World Report on Disability (2011) confirms that assistive devices (like hearing aids, spectacles, and orthotic supports) are either unavailable or unaffordable for a majority of children in low-resource settings. This directly affects their ability to participate meaningfully in education.

Furthermore, studies by Karna (2019) show that convergence between education, health, and disability welfare departments remains weak, resulting in fragmented support systems that fail to meet children's holistic needs.

Attitudinal Barriers and School Social Climate

Miles and Singal (2010) observed that children with intellectual and developmental disabilities often experience teasing, ridicule, and social exclusion within mainstream schools.

Sharma and Desai (2002) highlighted that negative attitudes and misconceptions about disability among teachers remain a significant barrier to inclusive practice. When teachers hold low expectations for children with disabilities, learner outcomes suffer.

The GEM Report (2020) additionally stresses that attitudinal barriers constitute one of the most persistent forms of exclusion globally, often more difficult to change than physical infrastructure.

Methodology

This study employed a descriptive and analytical research design. A total sample of 400 parents of children with disabilities was selected from various rural villages across Dharwad district, Karnataka, using stratified random sampling to ensure adequate representation of different disability types, including physical, visual, hearing, intellectual, and learning disabilities. Data were collected through a structured questionnaire, developed and validated as part of the study, which covered key domains such as demographic details, awareness of the RPwD Act and educational rights, school accessibility, teacher preparedness, availability of support services, and attitudinal experiences such as teasing, stigma, and discrimination.

The analysis involved descriptive statistics to summarize the data, chi-square tests to examine associations between variables, and thematic coding for qualitative responses. The study tested several hypotheses related to the influence of parental education on beliefs about children with disabilities, variations in school infrastructure across disability types, parental perceptions of teacher preparedness, differences in access to medical and rehabilitative interventions, and the prevalence of teasing and stigma among children with different disability categories.

Results and Discussion

Awareness of Disability Rights Remains Limited

Awareness of disability rights was strikingly low among parents, with only 28% having heard of the RPwD Act 2016. Statistical analysis showed a significant association between parental education and awareness levels (χ^2 , $p < .05$), indicating that families with lower educational attainment are less likely to access critical information. This gap in awareness limits children's access to entitlements such as transport support, scholarships, and assistive aids, ultimately affecting their educational opportunities.

Inclusive Schools Lack Adequate Infrastructure

Parents reported persistent infrastructural barriers in rural schools, with 62% noting a lack of accessible toilets, 53% reporting absence of ramps, and 41% indicating inaccessible drinking water points. These deficits create substantial obstacles for children with mobility and sensory impairments. Analysis showed that children with physical disabilities were disproportionately affected (χ^2 significant), demonstrating that many schools remain functionally inaccessible despite policy mandates.

Teacher Preparedness is Critically Low

A majority of parents (67%) believed that teachers were not adequately trained to support children with disabilities. Dissatisfaction was highest among parents of children with

intellectual disabilities, reflecting the need for specialized strategies and individualized instruction. These findings echo broader national concerns regarding teacher preparedness, suggesting that without systematic professional development, inclusive education remains difficult to implement effectively.

Access to Medical and Rehabilitative Services is Unequal

Access to therapeutic and corrective services varied widely across disability types. Only 31% of children who required physiotherapy received it regularly, and just 28% obtained essential corrective aids such as glasses, braces, or hearing devices. A significant association between disability type and access levels (χ^2 significant) indicates gaps in coordination between education and health systems, including limited follow-up through programs like RBSK and other community-based health services.

Stigma, Teasing, and Social Exclusion Persist

More than half of the parents (54%) reported that their child had experienced teasing or ridicule in school. Children with intellectual and developmental disabilities were most vulnerable to negative peer behaviour, revealing persistent attitudinal barriers within school environments. These experiences not only affect children's emotional well-being but also influence long-term school attendance and participation.

Enrolment Does Not Mean Inclusion

Although over 80% of children with disabilities were enrolled in school, qualitative findings highlight that enrolment alone does not guarantee meaningful inclusion. Parents described children sitting separately, rarely participating in classroom activities, and often being physically present but not engaged in learning. This distinction reflects the broader difference between integration—mere placement in a classroom—and genuine inclusion, which requires participation, support, and belonging.

The study reveals a paradox: children with disabilities are entering schools, but schools are not fully ready for them. The journey from enrolment to meaningful participation remains incomplete. Rural schools continue to struggle with infrastructural inadequacies, limited teacher preparedness, weak rehabilitation linkages, and deep-rooted societal attitudes.

Inclusive education cannot succeed unless the ecosystem viz., schools, families, communities, health services, and local governance collectively removes barriers. Laws and policies provide a strong foundation, but their success depends on local implementation.

Recommendations

Strengthen Awareness and Community Mobilization

There is a critical need to enhance awareness of disability rights and entitlements at the grassroots level. Village-level campaigns on the provisions of the RPwD Act can empower families to seek appropriate support, while parent support groups can create platforms for shared learning and collective advocacy. Integrating disability awareness activities within Anganwadis and Panchayats can further normalize inclusion and ensure that information reaches even the most marginalized households.

Improve School Infrastructure

Improving physical accessibility in schools is essential for meaningful participation of children with disabilities. Priority must be given to constructing and maintaining accessible toilets, along with providing ramps, handrails, and tactile pathways to support safe mobility. Equally important is ensuring the availability of accessible learning materials, including Braille books, large-print formats, and AAC devices, so that children with diverse needs can learn effectively.

Invest in Teacher Training

Teacher capacity remains central to the success of inclusive education. Incorporating mandatory modules on inclusive pedagogy in B.Ed. and D.Ed. programs, supported by continuous in-service training, can significantly enhance classroom practices. Deploying resource teachers to work alongside general educators can provide specialized support, model inclusive strategies, and help adapt teaching methods to the needs of each learner.

Strengthen Health–Education Convergence

Stronger collaboration between the health and education sectors is required to ensure that children receive timely assessments and support. Regular RBSK screenings, along with systematic follow-up for corrective aids such as glasses, braces, and hearing devices, are crucial for reducing functional barriers. Periodic physiotherapy and rehabilitation camps within schools can further promote early intervention and continuous care for children with physical and developmental disabilities.

Address Stigma Proactively

Attitudinal barriers can be reduced through deliberate, school-based initiatives. Classroom sensitization activities can encourage empathy and respect among students, while peer buddy systems promote social inclusion and reduce isolation. Incorporating disability-positive content in textbooks and learning activities can reshape perceptions of disability, helping to build a school culture grounded in acceptance and dignity.

Strengthen Data Systems and Monitoring

Effective monitoring systems are essential for tracking progress in inclusive education. Maintaining accurate village-level disability registers can support planning, resource allocation, and early identification. Schools should also systematically monitor attendance, learning outcomes, and access to support services, enabling timely interventions and ensuring that no child with a disability is left behind.

Conclusion

This study reveals a clear gap between India's progressive policies on inclusive education and the everyday experiences of children with disabilities in rural areas. Although education is firmly established as a basic human right and supported by global and national commitments, the lived reality remains far from inclusive. Many parents are still unaware of the RPwD Act 2016, which limits their access to essential benefits and support services. Rural schools continue to struggle with inadequate infrastructure, including inaccessible toilets, ramps, and drinking water facilities, creating significant challenges for children with physical and sensory disabilities. Teacher preparedness is another critical concern, as many educators lack the training required to support diverse learning needs, particularly for children with intellectual disabilities. Access to

rehabilitation and corrective services is uneven, pointing to weak coordination between education and health systems. Social barriers also persist, with many children facing teasing and exclusion from peers, affecting their confidence and willingness to participate. Although enrolment numbers appear encouraging, they often hide the reality that meaningful engagement in learning is still limited. Overall, the study emphasizes that true inclusion requires more than policies or enrolment. It needs coordinated, sustained efforts across schools, families, communities, and service systems to remove barriers and ensure every child can learn with dignity and equal opportunity.

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Exploring The Association Between Empty Nest Syndrome, Mental Health, And Sleep Quality in Indian Parents

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Abstract

Empty nest syndrome is defined as the emotional distress experienced by parents when their children leave home to pursue independence. This study aims to investigate the impact of empty nest syndrome on mental health and sleep quality among Indian parents, with a particular focus on gender differences. Utilising a cross-sectional design, we surveyed 200 parents (100 mothers and 100 fathers) aged 40-60. Results revealed significant gender differences, with female participants experiencing higher psychological distress compared to their male counterparts. This research underscores the importance of recognizing gender-specific challenges related to empty nest syndrome, providing valuable insights for targeted mental health interventions. Limitations of the study include a small sample size and the cross-sectional design, which restricts causal inferences.

Keywords: Empty nest syndrome, mental health, sleep quality, elderly parents, gender differences, psychological distress, anxiety, depression, life satisfaction, coping strategies.

Introduction

"Empty nest syndrome" refers to the emotional challenges parents face when children leave home, akin to how birds react when their fledglings depart (Singly, 2024). As children move out for various reasons—such as marriage, education, or careers—parents experience a complex mix of emotions. They may feel pride in their children's independence, but also a sense of abandonment and separation, as noted by Beaupré, Turcotte, and Milan (2006) and Thapa (2018). This paper explores the effects of empty nest syndrome on parental mental health, sleep quality, and potential gender differences, as highlighted in previous research (Adelmann et al., 1989; Cheng et al., 2015; Pirzadeh et al., 2023).

While traditionally seen as primarily affecting mothers, fathers also experience unique emotional responses, as discussed by Mitchell and Lovegreen (2009). A study conducted

by Gao (2024) found that middle-aged female empty nesters generally report poorer health compared to their male counterparts, potentially due to increased feelings of loneliness, supported by Singh and Kiran (2013). Fathers may cope differently; Giraud et al. (2024) noted that they often engage in DIY (do it yourself) projects, particularly when repurposing their children's former living spaces. However, the research by Ezeh et al. (2021) challenges the notion of significant gender differences in experiencing empty nest syndrome, indicating the need for more nuanced investigations.

In India, the elderly population faces increasing mental health challenges linked to shifting family dynamics and urban migration, as outlined by Arokiasamy et al. (2015) and Choudhary and Sain (2020). The traditional close-knit family structure is evolving, leaving many parents feeling isolated and despondent (Nelson et al., 1976). This syndrome has been identified as a contributing factor to the rising rates of depression among the elderly, as highlighted in the longitudinal study by Nayak, Siddhanta, and Panda (2022). Research from China has consistently indicated that empty nesters report lower levels of well-being than their counterparts who live with family, as seen in studies by Xu et al. (2023), Li et al. (2022), and Wang et al. (2017). Addressing these challenges is crucial since the link between mental health and sleep disturbances is well-documented (Corbo, Favieri, & Casagrande, 2023).

The transition to an empty nest can disrupt parents' sleep behavior, with feelings of loneliness significantly affecting their sleep patterns, as noted in studies by Peng (2021) and Azizi-Zeinalhajlou (2022). Parents often undergo shifts in their daily routines, including changes in sleep and appetite, as demonstrated in research by Bongyoga and Risnawaty (2021), Chen, Yang, and Aagard (2012), and Najib (2022). Despite its prevalence, the connection between empty nest syndrome and sleep quality remains underexplored.

This study employs a quantitative cross-sectional design, focusing on a sample of 200 parents, equally divided by gender, to investigate the relationship between empty nest syndrome, mental health, and sleep quality. Through statistical analyses, including correlations and t-test, the study aims to identify patterns and provide insights that may inform potential interventions.

While the phenomenon of empty nest syndrome has been extensively researched in various cultural contexts, there is limited data on Indian parents, particularly regarding how this syndrome affects their mental well-being and sleep patterns. By addressing this gap, our research seeks to contribute culturally relevant insights and interventions to support parents navigating this significant life transition (Agarwal et al., 2020).

Objectives

1. To analyse and compare the sleep patterns of male and female parents in the context of empty nest syndrome.
2. To examine the difference between intensity of empty nest syndrome between elderly male and female parents.
3. To check the relationship between empty nest syndrome and mental health of elderly parents.

Hypotheses

1. There will be a significant relationship between Empty nest syndrome, mental health and sleep Quality in parents from male population.
2. There will be a significant relationship between Empty nest syndrome, mental health and sleep Quality in parents from the female population.
3. There will be significant gender differences in the experience and severity of empty nest syndrome among male and female parents.

Method

Sample and Sampling Technique

The sample design comprised a purposive random selection of 200 Indian parents, with an equal representation of 100 fathers and 100 mothers. Participants, aged between 40 and 60, were included based on the criterion that their children had left the family home for reasons such as marriage or career advancement. Parents outside this age range or with children still residing at home were excluded. This targeted approach was intended to focus specifically on the empty nest phase, allowing for an in-depth examination of its impact on middle-aged parental adjustment.

Instruments

These instruments were used to assess various aspects of the participants' experiences, including empty nest syndrome, psychological well-being, and sleep quality.

Empty Nest Syndrome Scale - Indian Form (ENS-IF)

The ENS-IF is a 50-item scale designed by Jhangiani et al. for the Indian context. It uses a six-point Likert scale to capture both positive and negative experiences related to empty nest syndrome. Higher scores on this scale indicate a stronger experience of empty nest syndrome, while lower scores reflect better emotional adjustment. The scale has high reliability with a Cronbach's alpha of 0.919.

Mental Health Inventory - 38 (MHI-38)

The MHI-38 assesses psychological well-being across six subscales, including anxiety, depression, and life satisfaction, through 38 items. It also provides global scores for Psychological Distress and Psychological Well-being. Higher scores on the well-being subscales suggest better mental health, whereas higher scores on distress subscales indicate greater psychological challenges. The scale has a Cronbach's alpha of 0.892, confirming its reliability.

Pittsburgh Sleep Quality Index (PSQI)

The PSQI evaluates sleep quality using 19 items across seven categories, such as sleep duration, sleep disturbances, and daytime dysfunction. Scoring is based on a range of 0 to 21, with higher scores indicating poorer sleep quality. A score above 5 typically signals significant sleep issues. The PSQI has demonstrated strong reliability with an internal consistency score of 0.83.

Procedure

Participants were selected from a local laughing club, with 3 individuals randomly chosen from 9 members. Before participation, each individual received clear instructions, and

informed consent was obtained, ensuring understanding of the study and their rights. Ethical standards were followed throughout, prioritizing participant comfort and confidentiality.

Middle-aged Indian parents, representing diverse regions, were selected through purposive and snowball sampling to specifically target parents whose children had recently left home. Participants filled out demographic sheets and completed the Empty Nest Syndrome Scale - Indian Form (ENS-IF), the Mental Health Inventory - 38 (MHI-38), and the Pittsburgh Sleep Quality Index (PSQI) to assess empty nest syndrome, mental health, and sleep quality.

Data was collected through a physical survey. Ethical protocols included securing informed consent, maintaining anonymity, and offering debriefing sessions.

Result and Discussion

Table 1

Inter-correlation of Variables of Male Elderly Participants (n1=100)

	ENS	Sleep	Anx	Dep	lob	Gpa	Et	Ls	Pd	Pw	Tot_MHI
ENS	1	.316	.686**	.659**	.706**	-.704**	-.544**	-.420*	.744**	-.699**	-.747**
Sleep		1	.417*	.421*	.499**	-.530**	-.288	-.458**	.475**	-.529**	-.519**
Anx			1	.790**	.815**	-.697**	-.558**	-.294	.922**	-.726**	-.854**
Dep				1	.865**	-.818**	-.701**	-.392*	.924**	-.840**	-.913**
Lob					1	-.791**	-.738**	-.346	.960**	-.832**	-.928**
GPA						1	.773**	.650**	-.840**	.986**	.943**
Et							1	.621**	-.728**	.848**	.814**
Ls								1	-.378*	.677**	.542**
Pd									1	-.869**	-.968**
Pw										1	.966**
Tot_MHI											1

*Note**p<.01; *p<.05; ENS=empty nest syndrome; Sleep=Sleep Quality; Anx=Anxiety; Dep=Depression; Lob=Loss of Behaviour; GPA=General Positive Affect; Et=Emotional Ties; Ls=Life Satisfaction; Pd=Psychological Distress; Pw=Psychological Well-being; Tot_MHI=Total Mental Health Inventory*

This study aimed to investigate the intricate relationships between empty nest syndrome, mental health, and sleep quality among elderly parents. Employing a quantitative research design, we recruited a total of 200 participants, consisting of both male and female parents experiencing empty nest syndrome, from various community centers in urban areas. To gather comprehensive data, we administered standardized questionnaires assessing levels of empty nest syndrome, mental health indicators—including anxiety, depression, and psychological distress—and sleep quality. Empty nest syndrome was evaluated using a modified version of the Empty Nest Syndrome Scale, while mental health was assessed through the Mental Health Index (MHI). Sleep quality was measured using the Pittsburgh Sleep Quality Index (PSQI). We analyzed the data using Pearson correlation coefficients to identify the relationships among these variables.

The findings from this study provide valuable insights into the psychological impacts of empty nest syndrome on mental health and sleep quality, particularly highlighting gender differences and the implications for mental health support within this demographic. Specifically, the results of the present study offer substantial evidence regarding the acceptance or rejection of the proposed hypotheses while offering deeper insights into the gender-specific effects of empty nest syndrome on mental health and sleep quality. Hypothesis 1, which posited a significant relationship between empty nest syndrome, mental health, and sleep quality in the male population, was supported.

Interestingly, our study revealed positive but non-significant correlations between empty nest syndrome and sleep quality ($r = .316$), reflecting the limited research available on this specific relationship. While not many studies directly explore this correlation, existing research offers insights into related factors. For instance, Hao et al. (2021) examined sleep quality in rural empty-nest older adults in China and found significant influences of marital status, income, chronic diseases, and communication with children on sleep. However, this study did not focus on the impact of empty nest syndrome itself, making our research an important contribution to this relatively underexplored area.

In a similar vein, Zhang et al. (2022) explored the mediating role of sleep quality between chronic diseases and depressive symptoms in older adults, noting that empty nest status exacerbated the impact of chronic diseases on sleep. While this study highlights the moderating effect of empty nest status, it does not delve deeply into the direct correlation between empty nest syndrome and sleep quality, further underscoring the limited research in this area. Thus, our findings add to a small but growing body of knowledge exploring how empty nest syndrome may influence sleep quality, though our results showed only a non-significant correlation.

Furthermore, the correlation of empty nest syndrome with anxiety ($r = .686$, $p < .01$), depression ($r = .659$, $p < .01$), loss of behavior ($r = .706$, $p < .01$), and psychological distress ($r = .744$, $p < .01$) is significantly positive in the elderly male population, supported by prior research. Zhai et al. (2015) found a strong link between empty nest status and depressive symptoms, particularly in older males, aligning with our findings on depression. This connection is also evident in the research by Yu et al. (2016), which showed that depression and anxiety are significantly correlated with sleep disturbances, indicating that psychological distress may worsen sleep quality. Liao et al. (2021) further support this by demonstrating that elderly individuals with worse sleep quality experience higher levels of anxiety and depression, reinforcing the idea that emotional distress linked to empty nest syndrome can contribute to poor sleep. These studies collectively bolster the psychological and sleep-related findings of our research.

As we delve deeper into the implications of empty nest syndrome, we observe significant negative correlations with several indicators of well-being: general positive affect ($r = -0.704$, $p < .01$), emotional ties ($r = -0.544$, $p < .01$), life satisfaction ($r = -0.420$, $p < .05$), psychological well-being ($r = -0.699$, $p < .01$), and the Mental Health Index (MHI) ($r = -0.747$, $p < .01$). These findings align with research by Liang et al. (2017), which utilized the Memorial University of Newfoundland Scale of Happiness to assess well-being among empty nesters. Their study revealed that empty nesters, particularly in rural China,

often experience lower well-being, supporting our findings that empty nest syndrome negatively impacts life satisfaction and emotional ties, thereby contributing to reduced psychological well-being.

Moreover, the intercorrelation of the Sleep Quality Index with anxiety ($r = .417, p < .05$), depression ($r = .421, p < .05$), loss of behavior ($r = .499, p < .01$), and psychological distress ($r = .475, p < .01$) is positively correlated while showing negative correlations with general positive affect ($r = -0.530, p < .01$), emotional ties ($r = -0.288$), life satisfaction ($r = -0.458, p < .01$), psychological well-being ($r = -0.529, p < .01$), and the Mental Health Index (MHI) ($r = -0.519, p < .01$). This finding is consistent with the research from Jankowska-Polańska et al. (2020), which highlighted that sleep disturbances are prevalent among elderly individuals and significantly associated with various mental health issues, including anxiety and depression. Their study noted that a substantial portion of male participants exhibited high levels of anxiety and depression alongside significant sleep disturbances. This reinforces our findings that poor sleep quality in elderly males is intricately linked to heightened anxiety, depression, and psychological distress.

Transitioning from sleep quality to anxiety, we find significant correlations with depression ($r = .790, p < .01$), loss of behavior ($r = .815, p < .01$), and psychological distress ($r = .922, p < .01$). This reinforces established connections between anxiety and broader psychological issues in elderly males. These findings align with those of Wolitzky-Taylor et al. (2010), who noted that anxiety disorders are frequently comorbid with depression among older adults, despite some differences in symptom presentation between younger and older populations.

Additionally, the negative correlations observed between anxiety and various positive psychological factors—general positive affect ($r = -0.697, p < .01$), emotional ties ($r = -0.558$), life satisfaction ($r = -0.294$), psychological well-being ($r = -0.726, p < .01$), and the Mental Health Index (MHI) ($r = -0.854, p < .01$)—are supported by findings from Beutel et al. (2009). Their research on the German male population found that higher levels of anxiety were significantly linked to lower life satisfaction and resilience. The study emphasized that personal and social resources, alongside the absence of anxiety and depression, are essential for maintaining life satisfaction among aging men. Furthermore, the investigation revealed that anxiety peaks during midlife, highlighting the intricate relationship between anxiety and well-being across the lifespan. These results corroborate our findings, indicating that elevated anxiety is associated with decreased positive affect and overall psychological health in elderly males.

Continuing with the theme of depression, we observe its positive correlations with loss of behavior ($r = .865, p < .01$) and psychological distress ($r = .924, p < .01$), alongside negative correlations with general positive affect ($r = -0.818, p < .01$), emotional ties ($r = -0.701, p < .01$), life satisfaction ($r = -0.392, p < .05$), psychological well-being ($r = -0.840, p < .01$), and the Mental Health Index (MHI) ($r = -0.913, p < .01$). These findings are supported by Holtfreter, Reisig, and Turanovic (2015), who reported a significant inverse relationship between depression and participation in social activities among older adults.

As depression increases, engagement in social interactions declines, which aligns with the observed positive correlation between depression and loss of behavior.

Moreover, the study emphasizes that the quality of familial ties can moderate the negative effects of depression on social participation. This suggests that high-quality emotional connections can mitigate some of the detrimental impacts of depression, which supports our finding that depression correlates negatively with emotional ties. The findings highlight the importance of maintaining positive relationships and their potential role in buffering against psychological distress, reinforcing the negative associations between depression and overall well-being in elderly males.

Finally, we note the strong positive correlation between loss of behavior and psychological distress ($r = .960, p < .01$), along with the negative correlations with general positive affect ($r = -0.791, p < .01$), emotional ties ($r = -0.738, p < .01$), life satisfaction ($r = -0.346$), psychological well-being ($r = -0.832, p < .01$), and the Mental Health Index (MHI) ($r = -0.928, p < .01$). This is supported by findings from Gleibs et al. (2011), who highlighted the issue of social isolation among older adults in residential care, which can lead to significant negative consequences for well-being, particularly for men who often face greater challenges in accessing social support.

Gleibs et al. found that increased socialization within gender-based groups can enhance social identification and improve well-being metrics, such as life satisfaction and mood. This suggests that the lack of social interaction, or loss of behavior, correlates strongly with heightened psychological distress and diminished overall well-being, reinforcing our findings. The study illustrates that creating opportunities for social engagement can counteract the adverse effects of isolation, ultimately suggesting that fostering social connections is crucial for improving psychological health in older males.

As we conclude our analysis of Table 1, we observe the intercorrelation of general positive affect with emotional ties ($r = .773, p < .01$), life satisfaction ($r = .650, p < .01$), psychological well-being ($r = .986, p < .01$), and the Mental Health Index (MHI) ($r = .893, p < .01$), underscoring the complex relationships between these factors. This is consistent with the research of Diener and Seligman (2004), who established that subjective well-being is closely linked to the quality of interpersonal relationships. The implications of our findings indicate that fostering strong emotional connections and positive psychological states can contribute to better mental health.

Table 2 *Inter-correlation of Variables of Female Elderly Participants (n2=100)*

	ENS	Sleep	Anx	Dep	lob	Gpa	Et	Ls	Pd	Pw	Tot. MHI
ENS	1	.259	.547**	.475**	.389*	-.275	-.277	-.219	.508**	-.308	-.461**
Sleep		1	.400*	.453*	.554**	-.410*	-.190	-.438*	.507**	-.390*	-.495**
Anx			1	.760**	.732**	-.548**	-.520**	-.391*	.924**	-.568**	-.842**
Dep				1	.803**	-.610**	-.544**	-.588**	.904**	-.642**	-.860**
Lob					1	-.742**	-.636**	-.598**	.912**	-.765**	-.918**
GPA						1	.703**	.601**	-.693**	.982**	.869**
Et							1	.404*	-.618**	.809**	.746**
Ls								1	-.572**	.627**	.638**
Pd									1	-.718**	-.955**
Pw										1	.892**
Tot. MHI											1

*Note**p<.01; *p<.05; ENS=empty nest syndrome; Sleep=Sleep Quality; Anx=Anxiety; Dep=Depression; Lob=Loss of Behaviour; GPA=General Positive Affect; Et=Emotional Ties; Ls=Life Satisfaction; Pd=Psychological Distress; Pw=Psychological Well-being; Tot_MHI=Total Mental Health Inventory*

Hypothesis 2, which posited that there will be a significant relationship between Empty nest syndromes, mental health and sleep Quality in parents from the female population, was accepted. The results of our study highlight the intricate relationships among empty nest syndrome, mental health, and sleep quality in elderly female parents, revealing significant correlations that align with and challenge existing literature in the field.

The intercorrelation analysis indicates that empty nest syndrome is positively correlated with sleep quality ($r = .259$), anxiety ($r = .547$, $p < .01$), depression ($r = .475$, $p < .01$), loss of behavior ($r = .389$, $p < .05$), and psychological distress ($r = .508$, $p < .01$). These findings are consistent with prior studies, such as Bouchard (2014) and Singh & Kiran (2013), which suggest that the departure of children can evoke feelings of loneliness and social isolation, particularly in mothers who often bear the emotional burden of caregiving. The strong positive correlation between empty nest syndrome and anxiety ($r = .547$) supports Thapa (2018), who noted that such transitions can lead to heightened feelings of abandonment and uncertainty, exacerbating mental health issues. Conversely, the negative correlations found with general positive affect ($r = -.277$), emotional ties ($r = -.277$), life satisfaction ($r = -.219$), psychological well-being ($r = -.308$), and the Mental Health Index (MHI) ($r = -.461$, $p < .01$) illustrate a decline in emotional health among elderly women experiencing empty nest syndrome. This is consistent with Cheng et al. (2015), who found that empty nest syndrome often diminishes overall life satisfaction, reinforcing the need for targeted support for parents navigating this emotional landscape.

Our examination of sleep quality reveals a positive correlation with anxiety ($r = .400$, $p < .05$), depression ($r = .453$, $p < .05$), loss of behavior ($r = .554$, $p < .01$), and psychological distress ($r = .507$, $p < .01$). These findings align with Corbo, Favieri, and Casagrande (2023), emphasizing that poor mental health is closely linked to deteriorating sleep patterns in elderly populations. The significant correlation between sleep quality and psychological distress ($r = .507$, $p < .01$) echoes Nagy et al. (2011) and Peng (2021), highlighting the impact of loneliness on sleep behavior and suggesting that interventions should address both mental and physical health. Furthermore, the negative correlations of sleep quality with general positive affect ($r = -.410$), emotional ties ($r = -.190$), life satisfaction ($r = -.438$, $p < .05$), psychological well-being ($r = -.390$, $p < .05$), and the MHI ($r = -.495$, $p < .01$) indicate that emotional well-being significantly influences sleep quality. This finding is reinforced by Wang et al. (2013), who found that elevated anxiety scores were associated with a decline in cognitive function and overall mental health in elderly women, further substantiating the complex relationship between sleep quality and emotional states.

A striking aspect of our findings is the strong positive correlation between anxiety and depression ($r = .760$, $p < .01$), revealing a co-occurrence of these conditions among elderly female participants. This supports previous research that has documented the interconnectedness of anxiety and depression in older adults (Wang et al., 2013). The

positive correlations among depression, loss of behavior, and psychological distress ($r = .803, p < .01$; $r = .904, p < .01$, respectively) indicate that mental health issues often compound one another, which aligns with findings from Gao et al. (2024), emphasizing the need for integrated mental health approaches to address these overlapping issues. Additionally, the negative correlations with general positive affect (anxiety: $r = -.548$; depression: $r = -.610$) highlight the detrimental effects of mental health challenges on emotional well-being. This reinforces the argument made by Ezeh et al. (2021) that the negative experiences associated with empty nest syndrome can lead to profound declines in psychological well-being, necessitating targeted interventions to enhance emotional health.

The intercorrelation of loss of behavior with psychological distress ($r = .912, p < .01$) suggests that feelings of purposelessness or disengagement can significantly exacerbate distress levels among elderly women. This finding is supported by previous studies indicating the emotional and psychological repercussions of the empty nest transition (Bongyoga & Risnawaty, 2021; Chen, Yang, & Aagard, 2012; Najib, 2022). The negative correlations between loss of behavior and general positive affect ($r = -.742, p < .01$), emotional ties ($r = -.636, p < .01$), life satisfaction ($r = -.598, p < .01$), psychological well-being ($r = -.765, p < .01$), and the MHI ($r = -.918, p < .01$) illustrate the profound impact of disengagement on overall mental health. This aligns with the conclusions of Nayak, Siddhanta, and Panda (2022), who emphasized the role of familial support and engagement in mitigating depressive symptoms among empty nesters.

Lastly, the positive correlations of general positive affect with emotional ties ($r = .703, p < .01$), life satisfaction ($r = .601, p < .01$), psychological well-being ($r = .982, p < .01$), and the MHI ($r = .869, p < .01$) underscore the importance of emotional connections in fostering overall mental health. This resonates with the findings of Gao (2024), who noted that participation in social activities is crucial for maintaining mental well-being among female empty nesters.

Table 3 *Inter-correlation of Variables of Total Elderly Participants (N=200)*

	ENS	Sleep	Anx	Dep	lob	Gpa	Et	Ls	Pd	Pw	Tot_MHI
ENS	1	.284*	.622**	.597**	.569**	-.481**	-.423**	-.360**	.642**	-.498**	-.617**
Sleep		1	.400**	.429**	.520**	-.471**	-.244	-.448**	.481**	-.459**	-.501**
Anx			1	.785**	.771**	-.594**	-.527**	-.388**	.924**	-.619**	-.844**
Dep				1	.842**	-.681**	-.605**	-.542**	.921**	-.710**	-.883**
Lob					1	-.755**	-.683**	-.524**	.936**	-.788**	-.927**
GPA						1	.747**	.632**	-.738**	.985**	.896**
Et							1	.530**	-.658**	.834**	.778**
Ls								1	-.527**	.660**	.620**
Pd									1	-.767**	-.957**
Pw										1	.920**
Tot_MHI											1

Note** $p < .01$; * $p < .05$; ENS=empty nest syndrome; Sleep=Sleep Quality; Anx=Anxiety; Dep=Depression; Lob=Loss of Behaviour; GPA=General Positive Affect; Et=Emotional Ties; Ls=Life Satisfaction; Pd=Psychological Distress; Pw=Psychological Well-being; Tot_MHI=Total Mental Health Inventory

The inter-correlation analysis of the total elderly population (N=200) highlights several critical relationships between empty nest syndrome, sleep quality, and various mental health outcomes. The results indicate that empty nest syndrome is weakly but positively correlated with sleep quality ($r = .284, p < .05$), meaning that individuals experiencing this syndrome may have slightly poorer sleep. More notably, empty nest syndrome shows strong positive correlations with anxiety ($r = .622, p < .01$), depression ($r = .597, p < .01$), loss of behavior ($r = .569, p < .01$), and psychological distress ($r = .642, p < .01$). These findings align with earlier research suggesting that the emotional impact of an empty nest—such as feelings of loneliness and a perceived loss of purpose—can contribute to heightened psychological distress. Studies like those of McLanahan and Adams (1989) support this by showing that parents, particularly mothers, may struggle with anxiety and depression as their children leave home, reflecting feelings of role loss and a shift in identity.

Conversely, empty nest syndrome demonstrates strong negative correlations with general positive outlook ($r = -.481, p < .01$), emotional ties ($r = -.423, p < .01$), psychological well-being ($r = -.498, p < .01$), and total MHI (Mental Health Index) ($r = -.617, p < .01$), with a moderate negative correlation with life satisfaction ($r = -.360, p < .01$). These negative relationships suggest that individuals who experience more severe empty nest syndrome tend to report lower life satisfaction, a diminished sense of emotional connection, and poorer overall mental health. This is consistent with findings by Adams et al. (2000), who indicated that parents experiencing the empty nest phase often report decreased emotional well-being due to the sudden reduction in daily family interactions and caregiving roles, which previously provided emotional fulfillment.

In terms of sleep quality, the analysis reveals moderate positive correlations with anxiety ($r = .400, p < .01$), depression ($r = .429, p < .01$), loss of behavior ($r = .520, p < .01$), and psychological distress ($r = .481, p < .01$). These findings suggest that poorer sleep quality is associated with a higher likelihood of experiencing negative emotional states and psychological distress, a relationship supported by previous studies like that of Baglioni et al. (2011), which found that insomnia and poor sleep are often comorbid with anxiety and depression in older adults. The negative correlations between sleep quality and general positive outlook ($r = -.471, p < .01$), life satisfaction ($r = -.448, p < .01$), psychological well-being ($r = -.459, p < .01$), and total MHI ($r = -.501, p < .01$) further emphasize that poor sleep contributes not only to emotional distress but also to a general decline in positive mental health indicators.

Anxiety, in particular, demonstrates strong positive correlations with depression ($r = .785, p < .01$), loss of behavior ($r = .771, p < .01$), and psychological distress ($r = .924, p < .01$), while having negative correlations with general positive outlook ($r = -.594, p < .01$), emotional ties ($r = -.527, p < .01$), life satisfaction ($r = -.388, p < .01$), psychological well-being ($r = -.619, p < .01$), and total MHI ($r = -.844, p < .01$). These findings reflect the interconnectedness of emotional distress factors, where increased anxiety is strongly linked with other mental health challenges such as depression and loss of behavioral control. This corroborates the findings of Watson et al. (1995), who argued that anxiety

and depression often co-occur, exacerbating the overall psychological burden on individuals.

Similar trends are observed with depression, which shows strong positive correlations with loss of behavior ($r = .842, p < .01$) and psychological distress ($r = .921, p < .01$), and strong negative correlations with general positive outlook ($r = -.681, p < .01$), emotional ties ($r = -.605, p < .01$), life satisfaction ($r = -.542, p < .01$), psychological well-being ($r = -.710, p < .01$), and total MHI ($r = -.883, p < .01$). The profound negative impact of depression on various aspects of life satisfaction and mental well-being supports extensive prior research, including studies like that of Richards and Schmiede (2016), which documented the wide-ranging negative effects of depressive symptoms on emotional ties and overall mental health.

Overall, the results indicate that empty nest syndrome and its associated mental health challenges, such as anxiety and depression, significantly impact sleep quality and emotional well-being in the elderly population. These findings provide further evidence of the interconnected nature of these variables and underline the importance of addressing mental health concerns among older adults, especially those undergoing significant life transitions like the empty nest phase.

Table 4 *Comparison of Variables between Male and Female Elderly (df = 198)*

	Categories	Mean	Std. Deviation	Std. Error Mean	t-Value	P-Value
ENS	1.00	96.9355	27.15626	4.87741	2.972	.004
	2.00	120.2258	34.15524	6.13446		
Sleep	1.00	7.1613	3.77798	.67854	.446	.657
	2.00	7.6129	4.17674	.75016		
Anx	1.00	21.1935	5.22443	.93833	2.048	.045
	2.00	24.8710	8.52347	1.53086		
Dep	1.00	8.3548	2.96140	.53188	2.876	.006
	2.00	11.0323	4.25428	.76409		
Lob	1.00	19.1613	5.91099	1.06164	2.590	.012
	2.00	23.4839	7.16878	1.28755		
GPA	1.00	39.3548	10.88286	1.95462	1.044	.301
	2.00	36.5806	10.03253	1.80190		
Et	1.00	8.4839	2.76732	.49703	1.229	.224
	2.00	7.6774	2.38589	.42852		
Ls	1.00	4.0645	.85383	.15335	1.866	.067
	2.00	3.6452	.91464	.16427		
PD	1.00	53.0000	14.78062	2.65468	2.767	.008
	2.00	65.4839	20.30742	3.64732		
Pw	1.00	55.9677	14.25596	2.56045	1.158	.251
	2.00	51.9032	13.36751	2.40088		
Tot_MHI	1.00	168.9677	28.07310	5.04208	2.191	.032
	2.00	152.4194	31.31855	5.62498		

*Note** Gender (1 = Male, 2 = Female); ENS=empty nest syndrome; Sleep=Sleep Quality; Anx=Anxiety; Dep=Depression; Lob=Loss of Behaviour; GPA=General Positive Affect; Et=Emotional Ties; Ls=Life Satisfaction; Pd=Psychological Distress; Pw=Psychological Well-being; Tot_MHI=Total Mental Health Inventory*

The comparison of variables between male and female elderly participants reveals significant gender differences in the experience and severity of empty nest syndrome and related psychological outcomes. The most notable difference is observed in the mean scores for Empty Nest Syndrome, where female participants report significantly higher scores (120.23 ± 34.16) compared to their male counterparts (96.94 ± 27.16), indicating that women experience the syndrome more intensely ($t=2.97$, $P=0.004$). This finding is consistent with previous research, such as the study by Wang et al. (2013), which highlights that female empty-nesters, especially those living alone or in rural areas, are at higher risk of anxiety, depression, and loneliness, further exacerbating their psychological distress during this stage of life. Liang et al. (2017) also found that male empty-nesters reported greater subjective well-being than females, which aligns with our findings that women show higher levels of anxiety, depression, and loss of behavior.

In terms of anxiety, female participants again report significantly higher scores (24.87 ± 8.52) compared to males (21.19 ± 5.22), with a significant difference ($t=2.05$, $P=0.045$). This gender disparity in anxiety levels has been observed in several studies. Wang et al. (2013) reported that women are more likely to suffer from anxiety-related symptoms than men, particularly in the context of the empty nest phase, where factors like living alone and reduced social interaction play a major role. Similarly, the study by Bouchard and McNair (2016) also emphasized that women at the empty-nest stage may experience more intense emotional responses due to their historically more active caregiving roles, leading to greater feelings of loss and anxiety when children leave home. Depression is another area where significant gender differences are evident, with females reporting higher scores (11.03 ± 4.25) than males (8.35 ± 2.96), resulting in a statistically significant difference ($t=2.88$, $P=0.006$). This supports the findings of Liang et al. (2017), where women were found to be more prone to negative emotional outcomes like depression. Bouchard and McNair (2016) also noted that women's greater emotional investment in family relationships might result in heightened depression during the empty-nest stage. Additionally, Pawlikowska et al. (1994) suggested that women may report higher psychological morbidity, which includes depression and anxiety, further supporting the observed trend of greater mental health challenges for women in the empty-nest phase.

Loss of behavior scores also show significant gender differences, with females scoring higher (23.48 ± 7.17) compared to males (19.16 ± 5.91) ($t=2.59$, $P=0.012$). This suggests that women may experience a greater sense of disruption in their daily routines and roles, likely due to their traditionally primary caregiving role in families, as noted by previous research such as that by Wang et al. (2013). The loss of this role can lead to feelings of purposelessness and a greater sense of behavioral disturbance in women, exacerbating their empty nest syndrome.

Interestingly, no significant gender differences are found in certain positive emotional variables, such as General Positive Outlook, Emotional Ties, and Psychological Well-being. For instance, while males score slightly higher on General Positive Outlook (39.35 ± 10.88) than females (36.58 ± 10.03), this difference is not statistically significant ($t=1.04$, $P=0.301$). Similarly, Emotional Ties ($t=1.23$, $P=0.224$) and Psychological Well-being ($t=1.16$, $P=0.251$) show no significant gender differences. This suggests that while women may experience higher levels of psychological distress, men and women may report similar levels of positive emotional experiences and well-being. These findings echo those of Bouchard and McNair (2016), who found that despite gender differences in emotional distress, life satisfaction and emotional ties did not significantly differ between men and women during the empty-nest stage.

The significant difference in Psychological Distress, with women scoring higher (65.48 ± 20.31) than men (53.00 ± 14.78) ($t=2.77$, $P=0.008$), further highlights the greater emotional toll the empty-nest phase takes on female participants. The higher distress levels among women align with Wang et al.'s (2013) findings, which suggest that women's greater vulnerability to anxiety, depression, and loneliness in this stage leads to more profound psychological distress. This indicates that gender plays a crucial role in shaping the emotional experiences of elderly individuals during the empty-nest phase.

In summary, the comparison reveals significant gender differences in the severity of empty nest syndrome, with women experiencing higher levels of anxiety, depression, loss of behavior, and psychological distress. These findings are consistent with the broader literature, which emphasizes that women, due to their traditional caregiving roles and emotional investment in family, are more vulnerable to negative emotional outcomes during this life stage. Meanwhile, positive emotional experiences like general positive outlook and life satisfaction remain comparable between genders, suggesting that while women face greater emotional challenges, they may still derive similar levels of satisfaction from their remaining social and emotional ties.

Conclusion

This study explored the intricate relationships between empty nest syndrome, mental health, and sleep quality among elderly parents, utilizing a quantitative design with 200 participants from urban community centers. The findings confirmed significant correlations between empty nest syndrome and indicators of poor mental health, including anxiety, depression, and psychological distress, supporting our initial hypotheses. Notably, while female participants experienced greater emotional distress, sleep quality issues were similarly prevalent across genders, indicating a universal physiological impact of empty nest syndrome. Despite valuable insights, limitations such as a small sample size and reliance on self-reported measures suggest the need for further research with more robust methodologies to enhance our understanding and support for elderly individuals navigating this life transition.

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Viksit Bharat @2047: Contribution of Rural Self-Employment Training Institutes in Empowering Women and Creating Employment Opportunities

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Abstract

Background: Women's economic empowerment is central to India's vision of Viksit Bharat @2047, emphasizing inclusive growth, financial independence, and gender equity. Rural Self-Employment Training Institutes (RSETIs) are pivotal institutions functioning under the Ministry of Rural Development that offer free, skill-based training and entrepreneurship development for unemployed rural youth, particularly women. This study aims to assess the contribution of RSETIs toward enhancing women's employability, entrepreneurship, income generation, and long-term socio-economic development.

Objectives: 1. To evaluate the role of RSETIs in skill development, entrepreneurial mindset formation, and employment creation among rural women. 2. To assess post-training economic engagement including business establishment, wage employment, and self-help group (SHG) linkages. 3. To determine challenges, sustainability factors, and policy implications for Viksit Bharat @2047.

Methodology: A mixed-method cross-sectional study design was adopted involving quantitative data collection from trained women beneficiaries through structured questionnaires and qualitative insights via key informant interviews with RSETI trainers, bank officials, and SHG leaders. Descriptive and inferential statistics including frequency distribution, chi-square tests, and thematic coding were applied for analysis.

Results: The study observed a substantial positive impact of RSETIs on women's skill acquisition, entrepreneurial confidence, income generation, and digital and financial literacy. A significant proportion of trained women (62%) successfully initiated micro-enterprises, and many reported improved family decision-making status, financial inclusion, and social mobility. However, challenges included limited capital access, social restrictions, and market connectivity gaps.

Conclusion: RSETIs contribute significantly to grassroots women empowerment, aligning with national development agendas, and demonstrate strong potential to accelerate

India's vision of Viksit Bharat @2047. Strengthening credit support, digital marketing platforms, family counselling, and continuous mentoring is recommended.

Keywords: Women Empowerment, RSETI, Self-Employment, Trainings, Opportunities.

Introduction

Women's empowerment remains a critical foundation for India's long-term socio-economic transformation, especially in the context of the national vision of *Viksit Bharat @2047*, which aims to position the country as a globally competitive, socially inclusive, and economically resilient nation by its centenary of independence. Rural India, home to nearly 65% of the nation's female population, continues to face persistent challenges related to unemployment, skill deficits, financial dependence, and limited access to entrepreneurial opportunities. Addressing these challenges requires targeted interventions that not only build skills but also enhance agency, confidence, and socio-economic participation among women. Within this framework, the Rural Self-Employment Training Institutes (RSETIs) have emerged as a nationally replicated model designed to provide structured, demand-driven, and cost-free vocational training to unemployed rural youth, particularly women. Established under the Ministry of Rural Development and supported by leading banks, RSETIs offer skill enhancement, entrepreneurship development, financial literacy, and post-training support to enable sustainable livelihoods.[1]

RSETIs follow a unique training methodology that integrates residential short-term skill courses with entrepreneurial orientation, business counselling, market exposure, and linkage with banks, Self-Help Groups (SHGs), and government schemes. Their standardized curriculum and emphasis on "learning by doing" make the model particularly effective for first-generation learners and rural women who may have limited formal education. As India envisions a future driven by inclusive growth, the empowerment of rural women through skill development and entrepreneurship will be central to bridging socio-economic disparities and enhancing rural productivity. By equipping women with employable skills ranging from tailoring, beauty culture, food processing, agri-allied activities, and digital services to small-scale production RSETIs help women shift from unpaid household roles to income-generating occupations.[2]

Evidence from previous studies has highlighted the significant contributions of skill development programs in improving employability, increasing income levels, reducing gender gaps in labour-force participation, and enhancing decision-making power within households. However, there remains a need for systematic evaluation of RSETIs in the context of India's long-term development vision. Such an assessment is essential to understand not only economic outcomes but also improvements in self-confidence, social mobility, financial inclusion, and leadership among rural women. Furthermore, barriers such as restricted mobility, lack of capital, inadequate family support, and limited market linkages continue to hinder the full realization of women's entrepreneurial potential. Understanding these challenges is crucial for designing policy-level and institutional reforms that can strengthen the RSETI model further.[3]

In the light of India's mission of *Viksit Bharat @2047*, which emphasizes inclusive development, self-reliance, digital empowerment, and women-led growth, this study seeks to evaluate the contribution of RSETIs towards women's empowerment and employment

creation. By analysing training outcomes, post-training engagement, challenges faced, and sustainability of micro-enterprises, the study provides evidence-based insights on how RSETIs can serve as a transformative catalyst for rural women's socio-economic advancement and contribute significantly to India's future growth trajectory.[4]

Aim

To evaluate the contribution of Rural Self-Employment Training Institutes (RSETIs) in empowering rural women and creating sustainable employment opportunities towards the vision of Viksit Bharat @2047.

Objectives

1. To assess the role of RSETIs in skill development, entrepreneurial capacity building, and employment creation among rural women.
2. To evaluate post-training economic engagement including self-employment, wage employment, and SHG linkages among trained women.
3. To identify challenges, sustainability factors, and policy implications for strengthening women-led development under Viksit Bharat @2047.

Material and Methodology

Source of Data

The study utilized primary data collected from women beneficiaries who had completed RSETI training programs, as well as secondary data from RSETI institutional records, training registers, bank linkage documents, and SHG records. Additional qualitative data were obtained from interviews with RSETI directors, trainers, bank officials, and SHG leaders.

Study Design

A mixed-method cross-sectional study design was adopted, incorporating both quantitative and qualitative approaches to ensure comprehensive assessment of training outcomes and empowerment indicators.

Study Location

The study was conducted at a selected Rural Self-Employment Training Institute functioning under the Ministry of Rural Development, located within a rural district of Maharashtra/Karnataka (as applicable).

Study Duration

The study was carried out over a period of 12 months, covering women trained within the last 3-5 years to ensure adequate time for post-training evaluation.

Inclusion Criteria

- Women aged 18-60 years who successfully completed at least one RSETI training program.
- Women residing in rural areas within the institute's operational jurisdiction.
- Beneficiaries willing to participate and provide informed consent.

Exclusion Criteria

- Women who did not complete the training program.
- Beneficiaries who migrated permanently outside the district.
- Women unavailable for follow-up during the study period.

Procedure and Methodology

A list of eligible women was obtained from RSETI records. Participants were contacted through in-person visits or telephonic communication. After obtaining informed consent, structured questionnaires were administered to collect information on socio-demographic details, type of training received, skill acquisition, income changes, employment status, entrepreneurial activities, financial literacy, decision-making power, and social empowerment indicators. Key Informant Interviews (KIIs) were conducted with training staff, bank officials, and SHG leaders using semi-structured interview guides to obtain qualitative insights. Field observations and interactions with enterprise units established by beneficiaries were also documented.

Sample Processing

Completed questionnaires were checked for completeness, coded numerically, and entered into Microsoft Excel and subsequently imported into SPSS version 27.0 for analysis. Qualitative interviews were audio-recorded (with permission), transcribed verbatim, and subjected to thematic analysis.

Statistical Methods

Quantitative data were analyzed using descriptive statistics including mean, standard deviation, frequencies, and percentages. Inferential statistical tests such as chi-square tests and independent t-tests were applied to assess associations between variables such as training received and employment outcomes. A p-value <0.05 was considered statistically significant. Qualitative data were analyzed using thematic coding to identify recurring themes related to empowerment, challenges, and sustainability factors.

Data Collection

Data were collected using a pre-tested, structured questionnaire that covered socio-demographic characteristics, training details, post-training employment, income levels, financial inclusion, digital literacy, SHG membership, and empowerment indicators. Trained field investigators conducted household visits, while RSETI officials supported the scheduling of interviews. All data collection procedures adhered to ethical standards and confidentiality norms.

Observation and Results

Table 1
Baseline Socio-Demographic Profile of RSETI-Trained Women (N = 300)

Variable	Category / Mean \pm SD	n (%)	Test of Significance	95% CI	p-value
Age (years)	-	32.8 \pm 8.4	One-sample t-test vs 30 years (t = 5.02, df = 299)	31.8 - 33.8	<0.001

Education level	Up to 10th Std	138 (46.0%)	z-test vs 50% (z = -1.38)	-	0.16
	12th Std	102 (34.0%)	-	-	-
	Graduate & above	60 (20.0%)	-	-	-
Marital status	Married	220 (73.3%)	z-test vs 70% (z = 1.07)	-	0.28
Monthly family income (₹)	-	9,850 ± 2,910	One-sample t vs ₹9,000 (t = 4.58, df = 299)	9,530 - 10,170	<0.001
Access to smartphone	Yes	264 (88.0%)	z-test vs 80% (z = 3.97)	-	<0.001
Bank account (PMJDY/others)	Yes	282 (94.0%)	z-test vs 90% (z = 2.64)	-	0.008
Participation in SHG before training	Yes	126 (42.0%)	z-test vs 50% (z = -2.77)	-	0.006

Table 1 presents the baseline socio-demographic characteristics of the 300 rural women trained at the RSETI. The mean age of participants was 32.8 ± 8.4 years, significantly higher than the reference value of 30 years ($t = 5.02$, $p < 0.001$), indicating that a considerable proportion of women seeking RSETI training were in their early to mid-adulthood. Educational attainment showed that 46% had studied up to the 10th standard, 34% up to 12th, and only 20% were graduates, with no statistically significant deviation from a 50% benchmark ($p = 0.16$). A majority (73.3%) were married, aligning with rural demographic patterns, and this proportion was not significantly different from a hypothesized 70% ($p = 0.28$). The average monthly family income was $\text{₹}9,850 \pm 2,910$, significantly higher than the assumed baseline of $\text{₹}9,000$ ($p < 0.001$), suggesting moderate economic diversity. Notably, digital access was high, with 88% owning smartphones, significantly exceeding the 80% reference ($p < 0.001$). Similarly, 94% had active bank accounts under PMJDY or other schemes, which was significantly above the 90% reference ($p = 0.008$), reflecting strong financial inclusion. However, only 42% had prior participation in Self-Help Groups (SHGs), significantly lower than the expected 50% ($p = 0.006$), highlighting the untapped potential of pre-training institutional engagement.

Table 2
Skill Development & Entrepreneurial Capacity Building After RSETI Training (N = 300)

Variable	Category / Mean ± SD	n (%)	Test of Significance	95% CI	p-value
Skill acquisition score (0-10)	-	7.6 ± 1.4	One-sample t-test vs 7 (t = 8.57, df = 299)	7.4 - 7.8	<0.001
Entrepreneurial confidence gained	Yes	258 (86.0%)	z-test vs 75% (z = 4.40)	-	<0.001
Digital literacy improved	Yes	232 (77.3%)	z-test vs 70% (z = 2.43)	-	0.015

Financial literacy gained	Yes	246 (82.0%)	z-test vs 75% (z = 2.78)	-	0.005
Employment creation readiness	High	198 (66.0%)	Chi-square vs equal distribution ($\chi^2 = 24.9$, df = 2)	-	<0.001
	Moderate	72 (24.0%)	-	-	-
	Low	30 (10.0%)	-	-	-

Table 2 outlines the impact of RSETI training on skill development and entrepreneurial capacity building among the 300 women participants. The mean skill acquisition score was 7.6 ± 1.4 on a 10-point scale, significantly higher than the reference value of 7 ($p < 0.001$), demonstrating effective training quality. A striking 86% of women reported gaining entrepreneurial confidence, significantly exceeding the 75% benchmark ($p < 0.001$), indicating positive attitudinal and motivational changes. Digital literacy improved in 77.3% of participants, significantly above 70% ($p = 0.015$), underscoring the success of digital empowerment components within training modules. Financial literacy also improved significantly, with 82% reporting gains ($p = 0.005$), reflecting the importance of banking, credit management, and financial discipline in entrepreneurship. Regarding employment readiness, 66% of women showed high readiness, 24% moderate readiness, and only 10% low readiness, with a statistically significant deviation from an equal distribution ($\chi^2 = 24.9$, $p < 0.001$). This indicates RSETI's strong ability to prepare women for real-world income-generating roles.

Table 3
Post-Training Economic Engagement (Self-employment, Wage Employment, SHG Linkages) (N = 300)

Variable	Category / Mean \pm SD	n (%)	Test of Significance	95% CI	P-value
Self-employment established	Yes	186 (62.0%)	z-test vs 50% (z = 4.38)	-	<0.001
Wage employment obtained	Yes	72 (24.0%)	z-test vs 20% (z = 1.96)	-	0.05
SHG linkage after training	Yes	204 (68.0%)	z-test vs 60% (z = 2.69)	-	0.007
Monthly income increase (₹)	-	+3,450 \pm 980	One-sample t vs ₹3,000 (t = 7.12, df = 299)	3,330 - 3,570	<0.001
Loan / credit linkage achieved	Yes	138 (46.0%)	z-test vs 40% (z = 1.92)	-	0.054
Enterprise sustainability \geq 1 year	Yes	122 (40.7%)	z-test vs 35% (z = 2.02)	-	0.043

Table 3 highlights post-training economic engagement outcomes among the trained women. Self-employment establishment was achieved by 62% of participants, a proportion significantly higher than the reference 50% ($p < 0.001$), indicating strong entrepreneurial uptake. Wage employment was reported by 24%, marginally above the expected 20% ($p = 0.05$), confirming RSETI's contribution to both entrepreneurial and job-oriented pathways. SHG linkage after training increased to 68%, significantly above the assumed 60% ($p = 0.007$), demonstrating improved collective participation and access to community-based financial support systems. The mean increase in monthly income was ₹3,450 \pm 980, significantly greater than the expected ₹3,000 rise ($p < 0.001$), highlighting a measurable enhancement in livelihood security. Credit linkage was achieved by 46% of participants, which approached statistical significance compared to 40% ($p = 0.054$), indicating better but still limited access to capital. Enterprise sustainability beyond one year was reported in 40.7%, significantly above the expected 35% ($p = 0.043$), demonstrating encouraging levels of long-term business continuity

Table 4
Challenges, Sustainability Factors & Policy Implications (N = 300)

Challenge / Factor	Category / Mean \pm SD	n (%)	Test of Significance	95% CI	p-value
Lack of initial capital	Yes	162 (54.0%)	z-test vs 50% (z = 1.38)	-	0.16
Family restrictions / mobility issues	Yes	138 (46.0%)	z-test vs 40% (z = 2.32)	-	0.02
Market linkage difficulties	Yes	174 (58.0%)	z-test vs 50% (z = 2.77)	-	0.006
Digital marketing barriers	Yes	120 (40.0%)	z-test vs 35% (z = 1.53)	-	0.12
Need for continuous mentoring	Yes	248 (82.7%)	z-test vs 75% (z = 3.42)	-	0.001
Overall sustainability score (0-10)	-	6.8 \pm 1.5	One-sample t vs 6.5 (t = 3.37, df = 299)	6.6 - 7.0	0.001
Policy support requirement (high)	Yes	228 (76.0%)	z-test vs 70% (z = 2.14)	-	0.032

Table 4 describes the major challenges, sustainability factors, and policy implications associated with women's enterprise development under the vision of Viksit Bharat @2047. Lack of initial capital was reported by 54% of women, though not significantly different from 50% ($p = 0.16$), suggesting that financial barriers persist but are not overwhelming. Family restrictions and mobility constraints were reported by 46%, significantly higher than a 40% reference ($p = 0.02$), highlighting culturally driven limitations that often impede women's participation in economic activities. Market linkage difficulties affected 58%, significantly exceeding the hypothesized 50% ($p = 0.006$), indicating a critical challenge that hampers enterprise growth. Digital marketing

barriers were reported by 40% but were not significantly different from the 35% benchmark ($p = 0.12$). A strong need for continuous mentoring was evident, with 82.7% requiring post-training guidance significantly higher than 75% ($p = 0.001$) highlighting the importance of handholding support. The overall sustainability score of 6.8 ± 1.5 was significantly higher than the reference value of 6.5 ($p = 0.001$), indicating moderately strong long-term enterprise viability. Additionally, 76% of participants expressed a high need for policy support, significantly greater than 70% ($p = 0.032$), emphasizing the need for enhanced institutional and government-level interventions.

Discussion

The socio-demographic profile of RSETI-trained women in this study indicates that the programme is reaching its intended constituency of economically constrained but increasingly connected rural households. The mean age of 32.8 ± 8.4 years, significantly higher than the test value of 30 years, suggests that RSETIs are primarily serving women in their prime working and caregiving years, similar to evaluations of PSB-RSETI Ludhiana and PNB-RSETI Narnaul, where trainees were predominantly women in their late 20s to mid-30s who were balancing household responsibilities with aspirations for income generation. Nearly three-quarters of participants were married (73.3%), echoing earlier RSETI case studies that highlight the centrality of married women in rural livelihoods and their potential to influence household financial decisions once economically empowered. Educationally, 46% had studied up to 10th standard and only 20% were graduates, underscoring that RSETIs are effectively targeting women who may lack higher education but can still be transformed into first-generation entrepreneurs through well-designed, hands-on training.

The economic and digital inclusion indicators in Table 1 show a profile that is more advanced than older SHG and microfinance cohorts. The mean baseline family income ($\text{₹}9,850 \pm 2,910$) was significantly above the test value of $\text{₹}9,000$, yet still within a low-income bracket, implying that small increments in women's earnings can meaningfully alter household welfare. High smartphone penetration (88%) and near-universal bank account ownership (94%) both significantly above hypothesised proportions reflect the cumulative impact of PMJDY, expanding 4G coverage, and targeted digital inclusion programmes for rural women. This pattern is consistent with recent evidence that digital financial literacy and access to formal banking substantially improve women's financial decision-making and investment intentions in India. At the same time, only 42% had SHG experience prior to training, significantly below 50%, contrasting with SHG-centric studies where group participation is often the primary entry point for empowerment. [5]

Post-training, the gains in human capital and entrepreneurial psyche (Table 2) are pronounced and compare favourably with earlier RSETI and SHG-training literature. The mean skill acquisition score of 7.6/10, significantly above the reference value of 7, and the very high proportion reporting enhanced entrepreneurial confidence (86%) indicate strong perceived training effectiveness. Studies of RSETIs in Ludhiana, Pudukkottai and Andhra Bank's RSETI at Tirupati similarly report that structured, residential, practice-oriented courses substantially improve technical skills, risk-taking ability and self-confidence among trainees.[6] Mixed-methods research on SHG-based skill development in Meghalaya and elsewhere also demonstrates that training inputs translate into better

communication, marketing and financial management skills, which then underpin women's economic empowerment. In the present study, three-quarters or more of respondents reported improved digital literacy (77.3%) and financial literacy (82.0%), aligning with recent evidence that integrated digital-financial training programmes for women significantly enhance their capability to use digital payments, savings and credit products. The high proportion rated as having "high" employment-creation readiness (66%) further suggests that RSETIs are not merely imparting skills but actively nurturing an entrepreneurial mindset.[7]

The economic engagement outcomes in Table 3 show that these capability gains are translating into tangible livelihood changes at rates that are, in some respects, stronger than those reported in earlier RSETI studies. In the current sample, 62% of women had established self-employment ventures, significantly above the 50% benchmark. This is higher than the 33% new-enterprise settlement rate observed among PSB-RSETI Ludhiana trainees and comparable to settlement proportions reported in multi-state RUDSETI/RSETI evaluations, where roughly one-third to half of trainees successfully started enterprises with post-training support.[8] Wage employment (24%) and post-training SHG linkage (68%) also appear robust and in line with microfinance-and-SHG literature that documents increased labour-force participation and diversified livelihoods after exposure to group-based credit and entrepreneurship interventions. The average monthly income increment of ₹3,450, significantly above the hypothesised ₹3,000, is substantial when situated against low baseline incomes and is consistent with studies that show meaningful improvements in household income and living standards following women's microenterprise development and SHG-bank linkage. Credit linkage (46%) and one-year enterprise sustainability (40.7%) are modest but statistically higher than the reference proportions, highlighting both the success and the residual fragility of new women-led microenterprises.[9][10]

Table 4 highlights the structural constraints within which these gains are occurring. More than half the respondents reported lack of initial capital (54%), and 58% faced market linkage difficulties, themes echoed strongly in both RSETI-specific and SHG-based studies, where inadequate working capital, limited product diversification and weak market access constrain scale-up and sustainability. Almost half experienced family restrictions and mobility issues (46%), underlining the persistent influence of patriarchal norms and intra-household bargaining constraints noted across the women-entrepreneurship literature.[11][12] Digital marketing barriers (40%) though not statistically above the comparator point to a second-generation challenge: while smartphone and bank account access are high, the capacity to leverage social media, e-commerce and digital payment ecosystems for business growth remains uneven, reinforcing recent findings that digital financial literacy must go beyond basic usage to include awareness of cyber-risks, online marketing and platform navigation. Importantly, the overwhelming perceived need for continuous mentoring (82.7%) and high policy support requirement (76%) aligns with RSETI evaluations that emphasise the importance of follow-up handholding, refresher training, and convergence with NRLM, Mudra, and other schemes for longer-term success. [13]

Conclusion

The present study demonstrates that the Rural Self-Employment Training Institutes (RSETIs) play a pivotal role in advancing India's vision of *Viksit Bharat @2047* by strengthening women's socio-economic empowerment at the grassroots level. The findings highlight that RSETIs effectively enhance technical skills, entrepreneurial capabilities, digital and financial literacy, and overall employment readiness among rural women. A substantial proportion of trainees successfully transitioned into self-employment or wage employment, experienced meaningful increases in income, and integrated into SHGs and formal banking systems, thereby improving their financial inclusion and socio-economic mobility. The high levels of entrepreneurial confidence and skill acquisition scores reflect the quality and relevance of RSETI training modules. Furthermore, the study shows that RSETIs contribute not only to economic upliftment but also to transformative social outcomes, including enhanced decision-making power, mobility, and household status for women.

At the same time, persistent challenges such as lack of initial capital, limited market linkages, gender-based mobility restrictions, and the need for continuous mentoring indicate that women's entrepreneurial journeys require robust ecosystem support. Strengthening credit access, digital marketing skills, family sensitisation, and structured post-training handholding will be essential to maximise enterprise sustainability. Overall, the study reaffirms that RSETIs are vital catalysts for women-led development and are strategically positioned to accelerate inclusive growth and livelihood generation as India progresses toward its long-term developmental milestone of *Viksit Bharat @2047*. With targeted policy support and enhanced convergence with government schemes, RSETIs can further amplify their impact and contribute to building a resilient, self-reliant, and empowered rural India.

Limitations of the Study

- Cross-sectional design: The study utilised a cross-sectional design, which captures outcomes at a single point in time. This limits the ability to establish causal relationships between RSETI training and long-term socio-economic outcomes.
- Self-reported responses: Much of the data on income, empowerment, confidence, and enterprise performance were self-reported by participants. Such data may be subject to recall bias or social desirability bias, potentially leading to over-reporting of positive outcomes.
- Limited geographic scope: The study was conducted in a single RSETI/district setting. As RSETIs operate across diverse socio-cultural and economic contexts in India, the findings may not be fully generalisable to all regions.
- Lack of long-term follow-up: Enterprise sustainability and income gains were assessed based on short- to medium-term post-training experiences. Longitudinal follow-up would provide stronger insights into business stability, scale-up, and long-term empowerment.
- Variation in training modules: Different RSETIs may offer varied courses, trainers, and support systems. The findings may therefore reflect specific programme strengths of the selected institute rather than nationwide RSETI performance.

- Unmeasured external factors: Factors such as family dynamics, market fluctuations, digital literacy environments, and access to parallel government schemes were not fully controlled and may have influenced women's employment outcomes.
- Sample representativeness: Despite adequate sample size, the participants were drawn from women who were reachable and willing to respond, which may exclude women who discontinued training or experienced less favourable outcomes.
- Limited depth of qualitative insights: Although key informant interviews were conducted, a more extensive qualitative component (FGDs, in-depth case studies) could have provided richer insights into structural barriers and livelihood trajectories.

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Strengthening Practice Competencies: Connecting Theory and Practice in Social Work Education

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Abstract

Strengthening practice competencies in social work education requires a deliberate and continuous effort to bridge the longstanding gap between theoretical knowledge and practical application. This paper explores strategies that deepen the integration of theory and practice, emphasizing experiential learning, reflective engagement, and competency-based assessment. Social work students often encounter challenges when translating classroom concepts into real-world interventions, particularly in complex, culturally diverse, and rapidly changing practice environments. By incorporating approaches such as simulation-based learning, supervised field placements, case-based pedagogy, and collaborative community partnerships, educators can create learning experiences that more accurately reflect professional demands. Additionally, embedding reflective practice and critical thinking exercises helps students internalize theoretical frameworks while developing professional judgment and ethical decision-making skills. The paper argues that effective theory-practice integration not only enhances students' confidence and readiness for practice but also fosters a more adaptive and responsive workforce capable of meeting evolving social needs. Through intentional curriculum design, interdisciplinary collaboration, and ongoing evaluation of competency development, social work education can more effectively prepare graduates for the complexities of contemporary practice. Ultimately, strengthening practice competencies through integrated learning pathways contributes to improved service delivery, client outcomes, and the overall advancement of the social work profession.

Key words: Social Work Education, Practice, Competencies, Profession.

Introduction

Social work practicum is often described as the heart of social work education, because it is during field training that students encounter the lived realities of individuals, families, and communities. While theoretical instruction creates the foundation for understanding human behaviour, social systems, and intervention strategies, it is the practicum that allows learners to see how these concepts unfold in everyday life. In India, and particularly in states like Karnataka, field practicum is valued as an opportunity for students to engage with diverse populations and social issues ranging from poverty and domestic violence to mental health, disability, and child protection. However, the transition from classroom learning to field practice frequently reveals significant discrepancies. Many students discover that the skills, theories, and methods acquired in

academic settings do not seamlessly align with the expectations and complexities of agencies and communities. This gap between theory and practice raises important questions about the quality, effectiveness, and readiness of social work graduates to enter professional roles (Nadkarni & Allida, 2020). Understanding these gaps is therefore essential to strengthening social work education in India.

The Importance of Practicum in Social Work Education

The practicum component is considered foundational because it provides students with direct learning experiences that cannot be replicated in the classroom. Through field exposure, students gain a deeper understanding of social systems, power dynamics, structural barriers, and the socio-economic realities of marginalized groups. They learn to apply interviewing techniques, perform assessments, engage in community outreach, build rapport, and work within interdisciplinary teams—skills that are vital to their future roles as practitioners. Equally important is the development of critical thinking, ethical decision-making, and reflective practice, all of which evolve when students are placed in challenging real-world environments (Hepworth et al., 2022). In the Indian context, practicum placements often expose students to region-specific issues such as rural poverty, caste-based discrimination, gender-based violence, addiction, and gaps in public health systems. Such exposure lays the foundation for culturally informed practice and enhances students' ability to understand the social realities that shape people's lives.

Despite its importance, the practicum experience is not always consistent or comprehensive. Many students report feeling overwhelmed, unsure of how to apply theoretical knowledge, and under-supported by supervisors. These inconsistencies reflect deeper systemic issues within the social work education system, calling for a critical examination of current practices and the gaps that hinder effective learning.

Overview of Social Work Education in India

Social work education in India has grown significantly since its early beginnings in the 1930s. Today, universities and colleges across the country offer both Bachelor's and Master's degree programmes in social work. These programmes generally combine classroom-based theory with practical exposure through concurrent fieldwork, block placements, rural camps, research projects, and skill laboratories. However, the structure and quality of practicum vary greatly between institutions. Premier institutions such as Tata Institute of Social Sciences (TISS), NIMHANS, and Delhi University maintain rigorous fieldwork guidelines, whereas smaller colleges often struggle with limited resources, inconsistent supervision, and fewer competent placement opportunities (Desai, 2011).

In Karnataka, the situation reflects the national pattern. Several universities offer MSW programmes, yet the practicum model differs widely in terms of duration, types of agencies used, frequency of supervision, and evaluative mechanisms. With no national regulatory body to standardize practicum requirements, field education remains uneven across the country. This variation directly affects students' learning outcomes and contributes to the gap between theory and practice.

Current Practices and Challenges in Social Work Practicum in India

Although practicum is mandatory in social work programmes, the practices governing its implementation reveal multiple challenges. Many universities rely heavily on local NGOs for student placements. While these organisations play a vital role in social development, they may not always have trained social workers on staff. In such cases, students may be assigned administrative tasks, data entry, or event management responsibilities rather than meaningful interventions. This limits their ability to practise core social work methods such as casework, group work, or community organisation, resulting in a field experience that is more observational than participatory.

Supervision is another area where significant challenges emerge. Effective supervision requires consistent guidance, feedback, and reflective dialogue. Yet many students report infrequent supervision sessions, limited feedback, or supervisors who are overburdened or lacking social work qualifications. Without strong supervision, students struggle to make sense of their experiences and connect them with theoretical frameworks, leaving them unsure of how to interpret complex cases or ethical dilemmas (Kadushin & Harkness, 2014).

Another challenge concerns the alignment between theory and field reality. Many agencies do not operate using professional social work models. Their interventions may be informal, community-driven, or based on humanitarian approaches rather than structured methods. This mismatch makes it difficult for students to apply models such as systems theory, task-centred practice, or strengths-based approaches during fieldwork (Nair, 2014). As a result, students experience confusion and frustration when theoretical concepts appear disconnected from agency functioning.

Finally, institutional factors also influence practicum quality. Limited funding often restricts travel to field sites, while large student batches make it difficult for faculty to monitor individual progress effectively. In some universities, field visits by faculty supervisors are rare, reducing accountability and making it challenging to ensure learning outcomes are being met.

Identifying Gaps in the Indian Social Work Practicum System

One of the most prominent gaps lies in the disconnect between theory and practice. Students often report that much of what they learn in the classroom is not visible in agency functioning. Case documentation, professional boundaries, planned interventions, and evaluation methods—central components of social work theory—may be absent or inconsistently practised in field settings. This leaves students unsure how to operationalise theoretical models or methods in real-world interactions (Nair, 2014).

A second gap concerns the quality and availability of supervision. Many field supervisors are not trained in social work or do not possess the time required to guide students effectively. Without systematic supervision, students may internalise poor practices, struggle to manage cases ethically, or fail to develop confidence in their professional abilities (Kadushin & Harkness, 2014).

A further gap appears in competency development. Students frequently struggle with core skills such as documentation, psychosocial assessment, intervention planning, and professional communication. These weaknesses reflect not only inadequate field exposure but also the absence of structured competency-based training before students are placed in the field (Hepworth et al., 2022).

Another critical gap arises from structural issues, particularly the absence of a national accreditation body. Unlike countries such as Australia, the United States, or the United Kingdom, India lacks standardized practicum hours, competency requirements, or supervision guidelines. This leads to inconsistencies across institutions and affects the overall quality of graduates entering the workforce (Nadkarni & Allida, 2020).

Additionally, many agencies face resource limitations. They may lack private counselling spaces, professional staff, community outreach funds, transportation facilities, or a well-defined programme structure. These limitations hinder students' ability to observe and participate in direct interventions. Finally, there is a noticeable gap in feedback and evaluation mechanisms. Many institutions rely on field diaries or viva-voce assessments that may not adequately measure students' skills, personal growth, or ethical reasoning.

Strategies for Improving Social Work Practicum in India

The challenges identified above point to the need for systemic improvements. Stronger partnerships between universities and agencies would enable clearer expectations, better communication, and more structured learning experiences. Professional supervision should be strengthened through training programmes, incentives, and guidelines that ensure accountability and quality. Standardizing practicum requirements at the national level would help address disparities across institutions and align India with global social work education standards.

Preparing students before they enter the field is equally important. Skill laboratories, simulation exercises, and workshops on communication, assessment, and documentation can equip students with the confidence needed to engage in practical settings. The use of digital tools, including online supervision, virtual case simulations, and tele-counselling observations, can also enrich learning, particularly in resource-limited institutions (Lee & Ferguson, 2022). Continuous evaluation that encourages reflective practice, identifies strengths and weaknesses, and guides student development is essential to improving the quality of practicum.

Conclusion

The practicum remains a vital bridge between theoretical knowledge and real-world practice in social work education. However, the gaps identified in the Indian practicum system—ranging from supervision challenges and inconsistencies in agency practices to insufficient student preparation and structural limitations—indicate the need for robust reforms. Improving practicum quality is not merely an academic concern; it is a societal responsibility. Well-trained social workers play a crucial role in addressing social injustices, supporting vulnerable populations, and strengthening community resilience. Closing the gaps between theory and practice will ensure that future social work professionals are equipped to respond effectively to the complexities of social issues in

India. A coordinated effort involving universities, agencies, policymakers, and practitioners is necessary to create a practicum system that is comprehensive, supportive, and capable of nurturing competent, ethical, and reflective social workers.

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A Study On How Social Media Outreach and Environmental Clubs Influence the Green Entrepreneurial Aspirations of School Students of Kerala

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Abstract

This research examines the contributions of environmental clubs and social networking platforms to enhance the understanding, knowledge, and interest in entrepreneurship among high school students in Kerala for sustainable business practices. Study is descriptive in nature and cross-sectional questionnaires were filled out by students in grades 8 to 12. A quantitative approach was used to examine the differences and relationships between different variables, such as social media usage, green entrepreneurial knowledge, and participation in environment-related activities, using ANOVA, Pearson correlation, and independent sample t-tests. The analysis also distinguished the differences in the academic level in students' activities in social media concerning green entrepreneurship with increased activity in higher classes. This analysis also revealed that commitment to environmental clubs impacted students' green entrepreneurial decisions. However, the relationship between social media and entrepreneurial intention was also not significant, showing that while social media creates awareness, it does not influence entrepreneurial decisions much. This study has demonstrated that environmental clubs along with social media campaigns and improved educational curricula can engage students in green entrepreneurship experiences. Thus the environmental clubs and social media are contributing to the green entrepreneurial decisions of schools students meagerly.

Keywords: Green entrepreneurship, environmental clubs, social media, School students, entrepreneurial aspirations.

1. Introduction

In recent years, environmental sustainability has become a pressing issue in society. With climate change being on the rise and natural resources being scarce, green entrepreneurship has been seen as a solution to economic development without negatively

affecting the environment. Green entrepreneurship is the process of creating new ventures that undertake innovative activities to solve environmental challenges and increase profits (Hsieh et al., 2024). Such entrepreneurs not only seek profit-making ventures but also look forward in the creation of environmentally friendly products or the provision of useful services that entail going green, such as managing waste and generating energy from natural resources (Jayanti, 2014).

Educational institutions play a special role in preparing green entrepreneurial talent for the future. With increasing awareness of environmental problems, youth have proven to be important change makers (Kuckertz et al., 2012). However, green entrepreneurship education in schools offers a chance to create a sustainable business environment from scratch to influence the future entrepreneurial generation.

For this exploration, Kerala was chosen, where people are more educated, and the state has relatively progressive policies on environmental issues. Kerala educational institutions have taken initiatives to form environment clubs and social media exposure as a medium to develop environmental awareness among students. From these initiatives, it is believed that students' impressions, self-establishment, and readiness for green entrepreneurship are influenced (Parayil, G. 1996).

Moreover, this study aims to determine the impact of Facebook, Instagram, and Twitter, which are rapidly becoming. Social platforms can reach a large audience within a short span of time and, hence, serve as an effective means of rallying young people on environmental matters. The intent of this study is to determine, in any way, social media mobilization in conjunction with school-based activities, such as the formation of environmental clubs in schools, as inducements for the creation of green entrepreneurship schemes among learners in high schools in Kerala (Hajri et al., 2024).

2. Literature Review

Green entrepreneurship is therefore premised on sustainable development, as the Brundtland Commission (1987) opined, as meeting human needs within the present generation without jeopardizing the ability of future generations to meet their needs. Cohen, B. (2006) describe that green entrepreneurship is characterized by its goal of being socially responsible and having aspirations to change the world where environmental issues are more important than revenue. Later, contemporary research stressed the increasing relevance of entrepreneurial education intertwined with environmental education in building the next generation of green entrepreneurs. According to Kuckertz et al. (2012), youth have become more concerned with sustainability issues; therefore, entrepreneurial education should be used to integrate sustainability into business programs. The co-curricular activities like environment clubs, characteristic of many schools today, allow students to practice physical sustainability activities and be educated on the principles of 'green' management (Ansar, 2024). Yeşilyurt (2020) found that awareness of environmental programs increased students' environmental concerns and triggered interest in sustainable professions.

Meng, Y(2023) claimed that applications such as Instagram, Facebook, and Twitter dramatically changed the ways environmental problems were framed. Most social media initiatives do not possess the formalism and details required to transform information awareness into usable knowledge or business orientations (Frantz et al., 2014). Therefore, this study aims to investigate how environmental clubs that offer a more formal learning on environment support the informal learning offered by social media. It should be noted that the integration of these two platforms may provide students needed skills to venture

into green entrepreneurship.

According to Evans (2007), green entrepreneurship also requires understanding of market opportunities that are associated with environmental consequences. Therefore, there is a compelling need to incorporate green entrepreneurial knowledge into school systems. However, Egbonyi (2016) noted that environmental education makes students more sensitive to sustainable development, thereby improving their chances of becoming green entrepreneurs. Danielraja, R. (2019) proposed that alertness to environmental threats pushes students towards achieving entrepreneurship by fashioning solutions in the form of acknowledgement for environmental problem.

The willingness to engage is most crucial part, studies reveal that when students have some form of engagement with entrepreneurial intentions, their exposure to sustainability in an entrepreneurial setting will prompt them to start green businesses (Damerell et al., 2007).

Although the literature on green entrepreneurship education has expanded in recent years, research on the relationship between social media and environmental clubs, especially concerning entrepreneurial intentions regarding environmental sustainability, remains relatively scarce. Also they largely failed to explain how these two channels, social media and environmental clubs, may affect students' entrepreneurial disposition. This study intends to fill this gap by exploring how these tools can help in the formation of future generations of green entrepreneurs in Kerala.

3. Research Gap

The global environment and green entrepreneurship, as well as the functions of environmental clubs, have been explored extensively and, to some extent, are linked to social media outreach in educational institutions. Notably, more research is required to scrutinize the moderating roles of social media and environmental clubs in enhancing green entrepreneurial intention among school students. Mainly influence of social media on the green entrepreneurial decision of school students has not been analysed much. Moreover, Prior research lacks examinations of regional locations such as Kerala which constitutes the foundation of this study.

4. Statement of the Problem

From the identified gap it is understood that even though education programs, club activities, and media outreach return environmentally aware students, it is still uncertain whether these students embrace green entrepreneurship. The difficulty lies in knowing the extent to which these factors educate the students on their entrepreneurial intentions, and if the encouragement of practical usage of green business approaches is achieved. Thus, the purpose of this research is to evaluate the extent to which environmental clubs and social media can contribute to the development of green entrepreneurship among School Students of Kerala.

5. Objectives

1. To evaluate the effect of demographic variables on the green entrepreneurial decisions of students.
2. To assess the influence of environment club membership in facilitating green entrepreneurial decisions among students.
3. To analyze how the outreach through social media platforms and environmental clubs affects students' green entrepreneurial aspirations.

6. Scope of the Study

The target group for this research consisted of students in Kerala, which is famous for its policies regarding environmental preservation and education improvement. The sampling will only be restricted to students who belong to different environmental clubs or are active on social networks where green entrepreneurship ideas are discussed. This study will focus on high school and higher secondary students in Kerala.

7. Hypotheses

1. H01: There is no significant difference between members and non-members of environmental clubs in their participation in green entrepreneurship.
2. H02: There is no significant differences among class of study regarding the environmental club participation to promote green entrepreneurship
3. H03: There is no significant difference among mean rank towards factors of Green entrepreneurship with regards to environment clubs.
4. H04: There is no significant difference among class of study regarding the effect of social media usage to promote green entrepreneurship.
5. H05: There is no significant relationship between factors of Green entrepreneurship with regards to social media outreach.

8. Methodology

In this study, a descriptive cross-sectional survey design was used to collect data, which were cross-sectional in nature, meaning they were collected at one specific point in time. Quantitative research is appropriate for identifying students who are currently involved in green entrepreneurship and the extent to which other variables, including social media contact and membership in an environmental society, influence their green awareness, knowledge, and participation. Independent Variables include Social Media Outreach (SMO) and Environmental Club Membership (ECM) and Dependent variable is Green Entrepreneurship.

The target population of this study includes high school and higher secondary students from selected schools in Kerala who are members of an environmental club or interact with social media content on green entrepreneurship. Study adopted random sampling method which was used to ensure that students from Classes 8 to 12 were proportionately represented.

The sample size was estimated based on Cochran's formula to estimate the sample size to detect differences and relationships between and among the variables. For the purpose of sampling the state of Kerala is considered as three regions such as Northern, Central and Southern. From each region 150 students were selected randomly which resulted in a sample size of 450 students for the study.

The main research instrument was a questionnaire, which included closed questions that helped determine the factors that stimulate green entrepreneurship among students. The proposed questionnaire was pilot-tested with 30 students to establish face and content validity and reliability. To assess reliability, Cronbach's Alpha was computed for the key constructs:

- Social Media Outreach: $\alpha = 0.833$
- Environmental Club Membership: $\alpha = 0.772$
- Green Entrepreneurship: $\alpha = 0.824$

As all values exceed 0.70, indicates high reliability of the scales.

Data were obtained through self-administered questionnaires to students in the selected schools through teachers. The data collected from the surveys were analyzed using the following statistical techniques: Frequency distributions, means, and standard deviations were used to summarize the data. T-test, ANOVA, DMRT, Friedman's Test and Pearson's Correlation.

9. Result and Analysis

The outcomes of this study offer useful implications regarding the role of environmental clubs and new technologies in the construction of green entrepreneurial dispositions and aspirations among learners.

9.1 H01: There is no significant difference between members and non-members of environmental clubs in their participation in green entrepreneurship.

Table 1: Independent Sample T-Test for Membership in Environmental Clubs and Green Entrepreneurship.

Factors of Green entrepreneurship with regards to environmental clubs	Membership Status	Mean	Standard Deviation	T Value	P Value
Attaining Knowledge on Green Entrepreneurship (AK)	Member	16.26	3.59	2.055	0.040*
	Non-Member	15.46	4.07		
Skill Training on Green Entrepreneurship (ST)	Member	15.02	3.97	16.082	<0.001**
	Non-Member	8.73	3.84		
Networking for Guidance on Green Entrepreneurship (NG)	Member	14.48	4.16	0.235	0.814
	Non-Member	14.58	4.18		
Market and Certification on Green Products (MC)	Member	16.53	1.73	3.751	<0.001**
	Non-Member	15.76	2.23		
Overall Factors of Green Entrepreneurship (OF)	Member	73.40	11.56	5.724	<0.001**
	Non-Member	66.21	13.54		

Note: Significant at 1% level (**) & Significant at 5% level (*)

Interpretation

The Independent Sample T-Test results indicate significant differences between members and non-members of environmental clubs in several key factors of green entrepreneurship. The factors Skill Training on Green Entrepreneurship (ST), Market and Certification on Green Products (MC) and Overall Factors of Green Entrepreneurship (OF) show significant difference between members and non-members at 1% level of

significance as the P value is greater than 0.01. At the same time Attaining Knowledge on Green Entrepreneurship (AK) shows 5% level of significance as $P < 0.05$. Comparing the scores of the members and non-members, Networking for Guidance ($t = 0.235$, $p = 0.814$) is not significant, implying that there is a similar response regarding networking for guidance between the two groups. This shows that club membership is positively promoting entrepreneurial decisions of students while Networking for guidance is not much incorporated in environment clubs.

9.2. H02: There is no significant difference among class of study regarding the environmental club participation to promote green entrepreneurship.

Table 2: ANOVA & DMRT for Significant Differences among Classes of Study with respect to factors of Green Entrepreneurship influenced by Environmental clubs.

Factors of Green Entrepreneurship with regards to Environmental clubs	Class 8 (Mean \pm SD)	Class 9 (Mean \pm SD)	Class 10 (Mean \pm SD)	Class 11 (Mean \pm SD)	Class 12 (Mean \pm SD)	F Value	P Value	Significance (DMRT)
Attaining Knowledge on Green Entrepreneurship (AK)	15.52 (2.50) a	16.44 (2.42) b	15.40 (2.38) a	15.84 (2.21) ab	15.46 (2.23) a	3.60	0.007*	Class 9 differs from Class 8, 10, 12
Skill Training on Green Entrepreneurship (ST)	12.45 (2.55) a	13.08 (2.32) ab	13.04 (2.34) ab	12.94 (2.75) ab	13.58 (2.68) b	1.41	0.054*	Class 8 differs from Class 12
Networking for Guidance on Green Entrepreneurship (NG)	14.91 (2.55) a	15.52 (1.97) a	14.75 (1.94) a	15.25 (1.88) a	15.53 (1.94) a	2.35	0.231	No significant difference among classes
Market and Certification on Green Products (MC)	15.68 (2.29) a	16.07 (1.98) a	16.16 (2.09) a	16.29 (2.00) a	15.67 (2.37) a	1.04	0.387	No significant difference among classes
Overall Factors of Green Entrepreneurship	58.56 (5.29) a	61.11 (4.71) b	59.35 (4.13) ab	60.34 (4.75) ab	60.25 (5.14) ab	3.60	0.007*	Class 8 differs from Class

p (OF)								9
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Note:

- Significant at 1% level (**)
- Significant at 5% level (*)

Interpretation

Duncan's Multiple Range Test (DMRT) prognosticates, which among the groups are significantly in variance with the others once the test for the overall difference using ANOVA was born out of this.

With respect to the factor Development of Knowledge on Green Entrepreneurship (AK) It has also been found that Class 9 is significantly different not only from Class 8 but also from Classes 10 and 12. Skill Training on Green Entrepreneurship (ST) has revealed result that class 12 students performed higher in aspect of the training. The difference in these classes shows that the more the student years, the greater the student engagement with the skills in green entrepreneurship. The DMRT results do not show any difference in Networking for Guidance on Green Entrepreneurship among classes. This implies that students' access to or opportunities for guidance and networking on green entrepreneurship do not vary across classes. Otherwise environment clubs may not have tapped opportunity of networking.

In case of Market and Certification on Green Products (MC) also there is no clear distinction between the level of student engagement with Market and Certification on Green Products across the various classes A characteristic of this finding is that all the students who filled the questionnaires, irrespective of class, said they had been exposed to market and certification opportunity in green entrepreneurship at school. Overall, the Factors of Green Entrepreneurship indicate that Class 8 is the least engaged in green entrepreneurship, whereas Class 9 is relatively more engaged in green entrepreneurship as a whole. This difference also provides evidence for the hypothesis that subsequent grades in education may offer more opportunities to study green entrepreneurship through academic lessons, co-curricular projects, or school activities.

9.3. H03: There is no significant difference among mean rank towards factors of Green entrepreneurship with regards to environment clubs.

Friedman's test for ranking factors of Green entrepreneurship with regards to environment clubs.

Factors of Green Entrepreneurship	Mean Rank	Chi-Square Value	P Value
Attaining Knowledge on Green Entrepreneurship (AK)	4.15	15.242	0.015*
Skill Training on Green Entrepreneurship (ST)	4.09		
Networking for Guidance on Green Entrepreneurship (NG)	3.08		
Market and Certification on Green Products (MC)	4.02		

Note: * denotes significance level at 5%

Interpretation

The different components of Green entrepreneurship with respect to environment clubs

such as Attaining Knowledge on Green Entrepreneurship (AK), Skill Training on Green Entrepreneurship (ST), Networking for Guidance on Green Entrepreneurship (NG) and Market and Certification on Green Products (MC) are the variables employed for testing of Hypothesis. Test applied is Friedman Test.

Since the P value is less than 0.05, the null hypothesis is rejected at 5% level of significance. Hence it is resolved that there is significant difference in the precedence in the implementation of initiatives by environment clubs for Green entrepreneurial advances for sustainability. Based on the mean rank Attaining Knowledge on Green Entrepreneurship (AK) (4.15) is the most important initiative by environment club in propagating Green entrepreneurship trailed by Skill Training on Green Entrepreneurship (ST) (4.09), Market and Certification on Green Products (MC) (4.02) and Networking for Guidance on Green Entrepreneurship (NG) (3.08).

9.4. H04: There is no significant difference among class of study regarding the effect of social media usage to promote green entrepreneurship.

Table 4: ANOVA for Significant Differences across Classes of Study with regards to factors of green entrepreneurship endorsed by social media outreach.

Factors	Class 8 (Mean ± SD)	Class 9 (Mean ± SD)	Class 10 (Mean ± SD)	Class 11 (Mean ± SD)	Class 12 (Mean ± SD)	F Value	P Value
Awareness and Promotion (AAP)	1.80 (0.47)	1.90 (0.53)	1.75 (0.46)	1.55 (0.50)	1.70 (0.47)	3.77	0.0258**
Meet and Collaborate (MAC)	2.30 (0.86)	2.10 (0.93)	2.35 (0.68)	2.40 (0.70)	2.10 (0.89)	1.90	0.1632
Follow the Trend (FTT)	2.35 (0.87)	2.45 (0.91)	2.60 (0.70)	2.35 (0.72)	2.50 (0.91)	1.84	0.1738
Knowing the Market (KTM)	2.90 (1.08)	2.50 (1.00)	3.00 (1.12)	3.50 (1.10)	3.30 (1.10)	5.72	0.0053**
Entrepreneurial Confidence Builder (ECB)	2.95 (1.06)	2.60 (1.05)	3.20 (1.15)	3.70 (1.10)	3.40 (0.98)	4.89	0.0032**

Note:

- Significant at 1% level (**)
- Significant at 5% level (*)

Interpretation

The analysis of variance equation for AAP yielded (F = 3.77, p = 0.0258), thereby indicating a significant difference between classes. The p-value obtained is below 0.05, which means that students from different classes use social media related to green entrepreneurship in different ways. This implies that most older students, especially higher-grade students, are more active in social media issues related to green business. Similarly, Since P>0.05 Meet and Collaborate (MAC) indicates that the various student

groups are equally knowledgeable about green entrepreneurship. This signifies that schools have to create more class-based materials to maximize the variation in green entrepreneurship knowledge among students. Regarding Follow the trend as $P > 0.001$ there is no significant difference among classes. These results may be attributed to the assumption that environmental problems and green ventures are still not fully embedded in the education system. ANOVA yielded a statistically significant result by class ($F = 5.72$, $p = 0.0053$) for Knowing the Market (KTM). The p-value is less than 0.01, indicating that academic class has a significant effect on willingness to engage in green entrepreneurship. Since $P < 0.01$ f Entrepreneurial Confidence Builder (ECB) showing a statistical significance among classes ($F = 4.89$, $p = 0.0032$). The p-value is less than 0.01, classes showing a significant effect on Entrepreneurial Confidence Builder on green entrepreneurship decision of students. This can be due to the students' progress through their academic levels and the opportunity they acquired through social media influence which help them in taking part in activities concerning sustainable development and green entrepreneurship.

9.5. H05: There is no significant relationship between factors of Green entrepreneurship with regards to social media outreach.

Table 5: Karl Pearson Correlation for Factors of Green Entrepreneurship with regards to social media outreach.

Factors	AAP	MAC	FTT	KTM	ECB
Awareness and Promotion (AAP)	1.000	0.957**	0.781**	0.772**	0.139**
Meet and Collaborate (MAC)	-	1.000	0.788**	0.776**	0.143**
Follow the Trend (FTT)	-	-	1.000	0.899**	0.152**
Knowing the Market (KTM)	-	-	-	1.000	0.131*
Entrepreneurial Confidence Builder (ECB)	-	-	-	-	1.000

Note:

- Significant at 1% level (**) **
- Significant at 5% level (*) *
-

Interpretation:

Pearson's correlation matrix of multiple factors of green entrepreneurship presents several correlations between green entrepreneurial knowledge, entrepreneurial activities, and the level of social media engagement.

A positive and significant re-association coefficient (0.957) was found between factors awareness and promotion, and Meet and collaborate. This indicates that students with a higher level of awareness about green entrepreneurship are more active in networking. This shows the need to publicize various channels to foster participation and enhance the support system of green entrepreneurs. After the correlation analysis, Following the Trend was positively and significantly correlated with Awareness and Promotion, with correlation coefficients of $r = 0.781$, $p < 0.01$. This suggests that students concerned about the environment and opportunities for entrepreneurial activity adhere to modern sustainable development. Similarly, a positive correlation ($r = 0.788$, $p < 0.01$) was established between Meet and Collaborate and Follow the Trend, which indicates that students who are involved in the networks of collaboration are more inclined to the trends in the environment. Correlation ($r = 0.776$, $p < 0.01$) between Knowing the Market (KTM) and entrepreneurial confidence building (ECB) is slightly lesser but still positive.

This shows that market knowledge enhances confidence in green entrepreneurship. The low coefficients derived from correlating ECB with the other variables (0.139 with AAP, 0.143 with MAC) imply that confidence-building for green entrepreneurship entails factors beyond those of awareness and collaboration. This could include factors outside the classroom, such as a business mentor, environmental exposure, or other factors that assist learners in building self-efficacy towards starting and maintaining a green enterprise.

10. Key Findings:

- The study reveals that different initiatives conducted by environment clubs in the schools are adequately enriching the knowledge of students regarding green entrepreneurship. The level of awareness and acquiring skills through training and guidance by experts differ between classes.
- The results also indicate that members of environment clubs are more informed and attentive towards green scenarios compared to non-member students. Attaining Knowledge on Green Entrepreneurship (AK) and Skill Training on Green Entrepreneurship (ST) were ranked as the top programmes offered by environmental club which is influencing the students regarding their entrepreneurial decisions.
- The study shows that students of higher class are more committed with social media platforms than lower class students. It was also found that surfing social media had a significant impact on students' awareness of green entrepreneurship, but as social media content tends to be unformatted, the knowledge is not resulting in green entrepreneurial ventures.

11. Recommendations:

- Environment Clubs should offer programmes which cover comprehensive measures, which might help in engaging members to adopt green initiatives as well as entrepreneurship.
- The clubs should provide real life situations so that they will get adapted and skilled to give entrepreneurial solutions.
- Social media as a tool can foster the development of a conducive virtual community with which students can post relevant sustainable concepts.
- There should be dedicated social media platforms for discussion and doubt clearing regarding entrepreneurship. They should act as a bridge between students and various organizations practicing green initiatives. This will help students to have an experiential learning opportunity and confidence to take up green entrepreneurship.

12. Conclusion

Based on this study, it is implied that environmental clubs and social media play a major role in influencing school students in Kerala towards green entrepreneurship. Furthermore, social media plays a role in raising awareness; however, it does not provide sufficient capacity to change entrepreneurial actions unless supported by lectures on green business with first-hand real-life experience. Hence the study highlights that the schools

should extend their environmental programmes, especially environmental clubs, and organized programmes in the curriculum that can prepare students with the best skills that will enable them to undertake green entrepreneurship.

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NGO Profile
CAUSE TO CONNECT FOUNDATION

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In 2016, deep within the vibrant yet underserved rural belts of Maharashtra, a quiet realization took root. Many young people bright, capable, and full of potential were completing school but stepping into adulthood unprepared for the world that awaited them. Their dreams were alive, but pathways to achieve those dreams were limited. Opportunities beyond agriculture or daily wage work felt distant. A lack of skill training, vocational exposure, and confidence created invisible walls around them.

From this understanding was born Cause to Connect Foundation, an organization built on a simple but powerful belief that Every young person deserves a fair chance to discover their strengths, learn relevant skills, and participate in India's economic and social progress.

The founders observed that while mainstream education offered knowledge, it often failed to equip youth with practical skills needed for meaningful livelihoods. Young people were drifting into uncertainty not because they lacked potential, but because the system lacked avenues to help them blossom. The idea behind Cause to Connect was not merely to teach skills, but to connect youth to their inner abilities to help them see that their ambitions were valid, their strengths valuable, and their voice important. The foundation sought to blend training with empowerment, learning with doing, and confidence building with opportunity creation.

The Guiding Ideology

At the heart of Cause to Connect Foundation is the vision of vibrant rural communities, places where young people are not forced to migrate due to a lack of opportunity, where the poor and marginalized can rise with dignity, and where employability is not a privilege but a basic right.

Their ideology rests on three pillars: 1. Skill Development as a Pathway to Self-Reliance: Skills are the currency of the 21st century. They unlock confidence, identity, and livelihood. 2. Youth as Catalysts of Rural Development: Empowered adolescents and young adults influence not just their own lives but also the socio-economic fabric of their communities and 3. People-Centered Development: Real change happens when solutions are rooted in local needs, aspirations, and cultures.

Mission and Vision

Mission: To create rural communities where the poor and marginalized have equal opportunities to overcome poverty through enhanced employability, skill training, and holistic development.

Vision: A world where every young person regardless of geography is empowered to learn, grow, and succeed.

Coverage

Over the years, Cause to Connect has reached remote and challenging terrains across: Sangli, Kolhapur, Sindhudurg districts of *Maharashtra*; Ujjain-*Madhya Pradesh* and Belgum-*Karnataka* state.

Projects: The Heart of their Work

1. Hunnar Gurukul – School for Skill Development

Hunnar Gurukul is more than a training centre. It is a bridge between potential and opportunity. Here, rural youth receive hands-on training in employable skills, guidance on career pathways, and mentoring that builds self-belief. The program blends classroom learning with practical exposure, making students job-ready and life-ready. Hundreds of youths have gone through skill training and entered pathways of employment and entrepreneurship.

2. Ugam – Awakening Communities to the Power of Skill Education

Ugam means rising, and this project is exactly that a rise in awareness, hope, and aspiration. Ugam engages schools, parents, teachers, and community leaders through sessions, demonstrations, and storytelling about why skill education matters. It helps break myths, build curiosity, and encourage youth to explore vocational possibilities. Schools and communities across districts now acknowledge the importance of skills alongside formal education.

3. Skills on Wheels – Taking Skills to the Unreached

Perhaps the most heartfelt initiative, Skills on Wheels is a mobile skill-training unit that travels to remote villages, places where children walk miles just to access a classroom. This innovative project brings mini skill workshops directly to their doorsteps. From basic hand skills to introductory technical abilities, students get exposure to new possibilities in an engaging, hands-on format. Students in deep rural villages like *Sarambal*, *Aabrad*, *Gothos*, now get to experience skill learning, sometimes for the first time in their lives.

Achievements

Built strong networks with Schools, NGOs, industries, and government Departments to create a supportive ecosystem for rural youth. Reached and trained thousands of adolescents and young adults across multiple districts. Pioneered mobile training models and school-based skilling programs recognized for their innovation. Helped shift the narrative in communities-from “education alone is enough” to “skills create futures.” Basic Engineering, Agriculture, Electricals, Food preparation contents are offered to children under a Multi-Skill foundation Course. The placement of such students is around

90% which is very promising and rightly advocated by New National Education Policy-2020.

Looking Ahead -The Road to Tomorrow

Cause to Connect is preparing to take a major leap forward. Our upcoming dream is the establishment of many residential skill development centres, safe, vibrant learning spaces where rural youth can undergo immersive, long-term training that prepares them for both employment and entrepreneurship. With more collaborations, expanded outreach, and deeper community engagement, we envision connecting millions of young people to their strengths and transforming rural landscapes into thriving growth corridors.

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