
Registration No. V-36244/2008-09

ISSN :- 2348-0076

JIFE Impact Factor – 5.21

Samajiki Sandarsh

A Multidisciplinary Quarterly International Peer Reviewed Referred Research Journal

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Volume - XIII

No. - 1

(Jan. – Mar. 2025)

Published by
Future Fact Society
Varanasi (U.P.) India

Samajiki Sandarsh - A Refereed Journal, Published by : Quarterly

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Managing Editor
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ISSN : 2348-0076

Printed by

Interface Computer, B 31/13-6, Malviya Kunj, Lanka, Varanasi-221005 (U.P.)

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Editor



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India's Taxation Framework Dynamics During Economic Recovery

Dr. Deepa B.*

Abstract

This research examines India's taxation framework evolution from FY2019 to FY2026, with particular emphasis on structural shifts following economic recovery from the pandemic. The analysis reveals a significant transformation in India's tax composition, characterized by direct taxes assuming greater prominence, particularly personal income tax which has surpassed corporate tax collections. This study highlights the government's conservative revenue projections, which have consistently been exceeded by actual collections, suggesting improved tax administration and compliance. The direct tax-to-GDP ratio has reached 7.1%, the highest since the 1980s, signaling enhanced formalization of the economy and effective tax policies. Additionally, the research addresses concerns regarding fiscal federalism, as states' share of gross tax revenues remains below the recommended 41% devolution rate, raising questions about resource distribution. These findings provide valuable insights for policymakers, economists, and stakeholders in understanding India's evolving fiscal framework amidst changing economic conditions.

Keywords: Direct taxation, Indirect taxation, Tax buoyancy, GST, Personal income tax, Fiscal federalism, Tax-to-GDP ratio, India budget, Economic recovery

1. Introduction

India's taxation framework has undergone significant transformation in recent years, particularly in the post-pandemic economic recovery phase. The structure and composition of tax revenues have evolved in response to economic challenges, policy interventions, and changing business dynamics. This research paper examines the evolving dynamics of India's taxation framework from FY2019 to projections through FY2026, with a focus on the structural shifts that have occurred during the economic recovery period.

The Indian economy, like most global economies, faced unprecedented challenges during the COVID-19 pandemic. However, its recovery trajectory has been marked by resilient tax collections, which have not only stabilized but shown robust growth in several segments. This resilience has been particularly evident in direct tax collections, especially personal income tax, which has demonstrated remarkable growth even during economic uncertainty.

This paper aims to analyze the key trends in tax collections, examine the changing composition of direct and indirect taxes, evaluate the tax-to-GDP ratios, and assess the implications of these changes for fiscal policy and economic growth. By understanding these dynamics, policymakers, economists, and businesses can better navigate the evolving fiscal landscape in India.

2. Literature Review

The study of taxation frameworks and their dynamics during economic recovery periods has been a subject of significant academic interest globally. Previous research has explored various aspects of tax policy reforms, revenue mobilization strategies, and fiscal federalism arrangements in India and other emerging economies.

Rao and Rao (2005) examined the evolution of India's tax system and highlighted the challenges in achieving optimal tax structures that balance revenue generation with economic growth objectives. Their work emphasized the need for broadening the tax base while ensuring equity and efficiency in tax administration.

Building on this foundation, Kelkar et al. (2012) analyzed the implications of tax reforms on India's fiscal consolidation efforts and suggested measures to enhance tax compliance and

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administration. Their recommendations included simplification of tax codes, reduction of exemptions, and modernization of tax collection systems.

More recently, Subramanian (2018) explored the implementation of the Goods and Services Tax (GST) in India and its impact on tax efficiency, compliance, and revenue generation. His research highlighted the potential of GST to formalize the economy and enhance tax compliance, while also pointing out implementation challenges.

In the context of economic recovery, Chelliah (1996) provided foundational insights into how tax systems respond to economic shocks and the role of fiscal policy in facilitating recovery. His work emphasized the importance of counter-cyclical fiscal measures, including tax adjustments, during economic downturns.

Patnaik and Shah (2021) examined India's fiscal response to the COVID-19 pandemic and analyzed the resilience of tax revenues during this period. Their research noted the surprising robustness of direct tax collections despite economic contraction, attributing it to improved compliance and formalization of the economy.

The current research builds upon these previous studies by analyzing the most recent trends in India's tax framework from FY2019 to FY2026 projections, with particular emphasis on the structural shifts that have occurred during the post-pandemic recovery period. This paper aims to contribute to the existing literature by providing a comprehensive analysis of tax composition changes, buoyancy patterns, and their implications for fiscal policy and economic growth in India.

3. Research Methodology

This research employs a descriptive analytical approach to examine India's taxation framework dynamics during the economic recovery period. The study utilizes secondary data from official government publications, primarily Budget documents from the Ministry of Finance, Government of India, and analysis reports from the National Stock Exchange (NSE) Economic Policy Research team.

3.1 Data Sources

The primary data sources include:

- Budget documents of the Government of India (FY2019 to FY2026)
- NSE Economic Policy Research reports
- Centre for Monitoring Indian Economy (CMIE) Economic Outlook
- Finance Commission reports, particularly the 15th Finance Commission

3.2 Time Period

The study covers the period from FY2019 to FY2026 (Budget Estimates), with particular focus on:

- Pre-pandemic period (FY2019-FY2020)
- Pandemic impact period (FY2021-FY2022)
- Recovery period (FY2023-FY2024)
- Future projections (FY2025 Revised Estimates and FY2026 Budget Estimates)

3.3 Analytical Framework

The research employs various analytical techniques to examine the data:

- Trend analysis of tax collections over time
- Comparative analysis of direct versus indirect tax components
- Assessment of tax buoyancy in relation to nominal GDP growth
- Evaluation of tax-to-GDP ratios across different tax components
- Analysis of deviation between budgeted estimates and actual collections

This methodological approach enables a comprehensive understanding of the evolving dynamics of India's taxation framework during the economic recovery period, allowing for evidence-based insights and recommendations.

4. Analysis and Findings

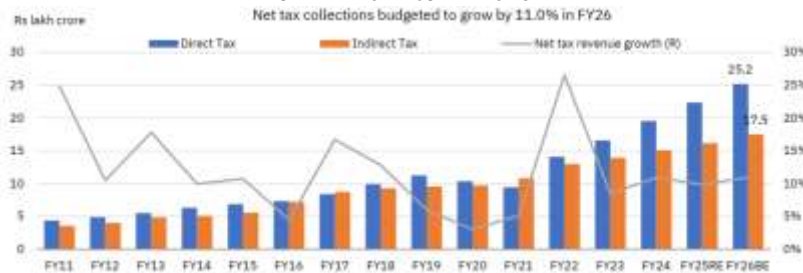
4.1 Trends in Tax Collections and Revenue Growth

India's gross tax revenue for FY2026BE is projected at Rs42.7 lakh crore, representing a 10.8% increase over FY2025RE. This growth is primarily driven by robust performance in personal income tax (+14.4%), corporate tax (+10.4%), and GST collections (+10.9%). These projections align closely with the expected nominal GDP growth of 10.1%, indicating realistic revenue targets that maintain pace with economic expansion.

A notable trend observed in recent years is the conservative nature of budgeted revenue estimates. Between FY2022 and FY2024, actual collections have consistently exceeded projections, demonstrating the government's prudent approach to fiscal planning. This trend continued in FY2025, where revised gross tax revenues remained in line with budget estimates, with personal income tax collections surpassing projections, while corporate tax and union excise collections fell short.

Figure 1

"Trends in tax collections" with direct tax, indirect tax, and net tax revenue growth trends from FY2011 to FY2026BE



Source: Budget Documents, NSE EPR. BE: Budget Estimates; RE: Revised Estimates.

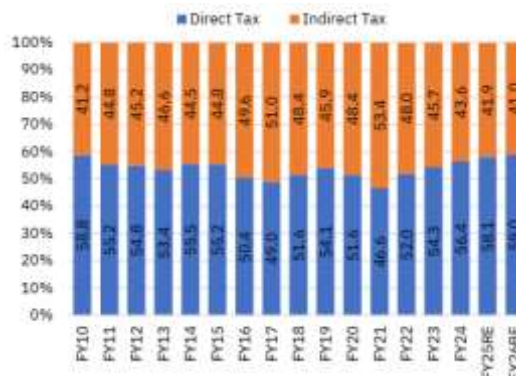
The analysis of net tax collections reveals a projected growth of 11% in FY2026BE, outpacing the 9.9% growth in FY2025RE. This acceleration is supported by higher gross tax revenues and reflects continued improvement in tax administration and compliance.

4.2 Shifting Composition of Tax Collections: Direct vs. Indirect Taxes

One of the most significant transformations in India's taxation framework has been the changing composition of direct and indirect taxes. The share of direct taxes in gross tax revenues has been steadily increasing, rising from 54.1% in FY2019 to a projected 59.0% in FY2026BE. This shift reflects a structural change in India's tax system, moving toward greater reliance on direct taxation.

Figure 2

Break-up of gross tax revenues into direct and indirect tax" from FY2010 to FY2026BE

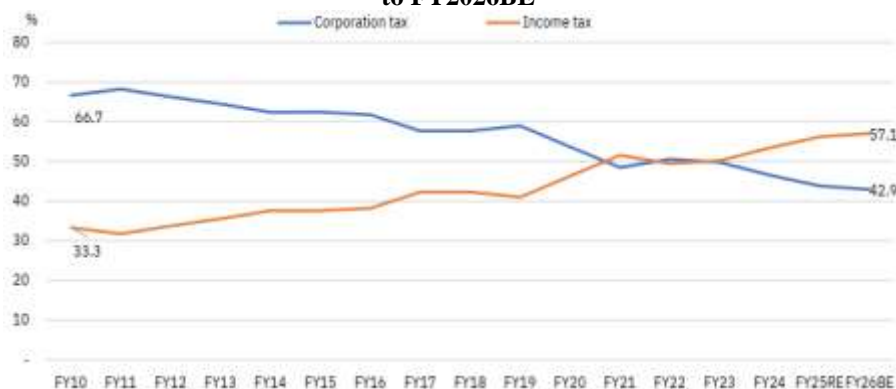


Source: Budget Documents, NSE EPR. BE: Budget Estimates; RE: Revised Estimates;

Note: Here, GST includes GST Compensation Cess. Others include taxes of Union Territories and service tax.

Within direct taxes, a remarkable trend has been the growing dominance of personal income tax. Since FY2023, personal income tax has accounted for a larger share of direct tax collections than corporate tax, with its contribution rising to 57.1% in FY2026BE from 41% in FY2019. This substantial shift represents a fundamental change in India's direct tax structure and signals increasing formalization of the economy and improved compliance among individual taxpayers.

Figure 3
Share of corporate and personal income tax in direct tax collections" with trends from FY2010 to FY2026BE



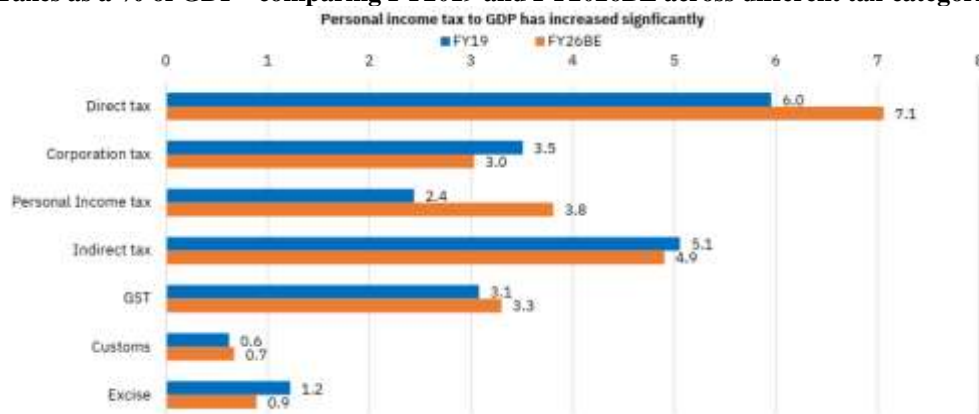
Source: Budget Documents, NSE EPR. BE: Budget Estimates; RE: Revised Estimates

The increased reliance on direct taxes, particularly personal income tax, has significant implications for tax equity, economic stability, and fiscal planning. Direct taxes are generally considered more progressive and provide a more stable revenue base during economic fluctuations compared to consumption-based indirect taxes.

4.3 Tax-to-GDP Ratios and Tax Buoyancy

The tax-to-GDP ratio is a critical indicator of a country's fiscal capacity and the effectiveness of its tax system. India's tax-to-GDP ratio is projected at approximately 12% in FY2026BE, exceeding the pre-pandemic average of 10.8% (FY2015-FY2019). This improvement indicates enhanced revenue mobilization capacity and more effective tax administration.

Figure 4
Taxes as a % of GDP" comparing FY2019 and FY2026BE across different tax categories



Source: Budget Documents, NSE EPR. BE: Budget Estimates

Particularly noteworthy is the direct tax-to-GDP ratio, estimated at 7.1% in FY2026BE—the highest since the 1980s. This is supported by a direct tax buoyancy of 1.2, compared to an indirect tax-to-GDP ratio of 4.9% with a buoyancy of 0.8. The higher buoyancy of direct taxes indicates their greater responsiveness to economic growth, making them a more effective source of revenue during periods of economic expansion.

Within the direct tax category, personal income tax has shown remarkable growth, with the personal income tax-to-GDP ratio increasing from 2.4% in FY2019 to a projected 3.8% in FY2026BE. This significant improvement reflects enhanced compliance, increased formalization, and effective tax administration.

Figure 5
Tax buoyancy vs. nominal GDP growth" trends from FY2011 to FY2026BE



Source: Budget Documents, NSE EPR. BE: Budget Estimates; RE: Revised Estimates

4.4 Performance of Individual Tax Components

4.4.1 Personal Income Tax

Personal income tax collections have demonstrated exceptional performance, growing at a CAGR of 17.6% since pre-pandemic levels. This growth has significantly outpaced corporate tax collections, which grew at a CAGR of 7.2% during the same period. Several factors have contributed to this robust performance:

1. Simplified tax filing procedures and digital infrastructure
2. Enhanced compliance measures and data analytics for tax enforcement
3. Increasing formalization of the economy
4. Rising personal incomes, particularly in the formal sector

Despite income tax relief measures introduced in the Budget, personal income tax collections are projected to remain strong at +14.4% year-on-year in FY2026BE, indicating the resilience of this revenue stream.

4.4.2 Corporate Tax

Corporate tax collections, while demonstrating growth, have been more volatile compared to personal income tax. In FY2025RE, corporate tax collections fell 3.9% short of the budget estimate, reflecting lower-than-expected corporate earnings during this period. However, a recovery is projected for FY2026BE with 10.4% year-on-year growth, indicating improved corporate profitability expectations.

The relatively slower growth in corporate tax collections may be attributed to:

1. Competitive reduction in corporate tax rates
2. Economic challenges faced by certain sectors
3. Utilization of tax incentives and exemptions

4.4.3 Goods and Services Tax (GST)

GST has emerged as a critical component of indirect tax collections, with robust growth projected at 10.9% in FY2026BE. The significant improvement in GST revenues is attributed to

higher compliance, increased formalization, and stable economic conditions. GST's share in gross tax revenue is expected to reach 27.6% in FY2026BE, making it a cornerstone of indirect taxation.

Figure 6

Components of gross tax revenue receipts in FY26BE" with the pie chart breakdown



Source: Budget Documents, NSE EPR. BE: Budget Estimates; RE: Revised Estimates; Note: Here, GST includes GST Compensation Cess. Others include taxes of Union Territories and service tax.

4.4.4 Excise and Customs Duties

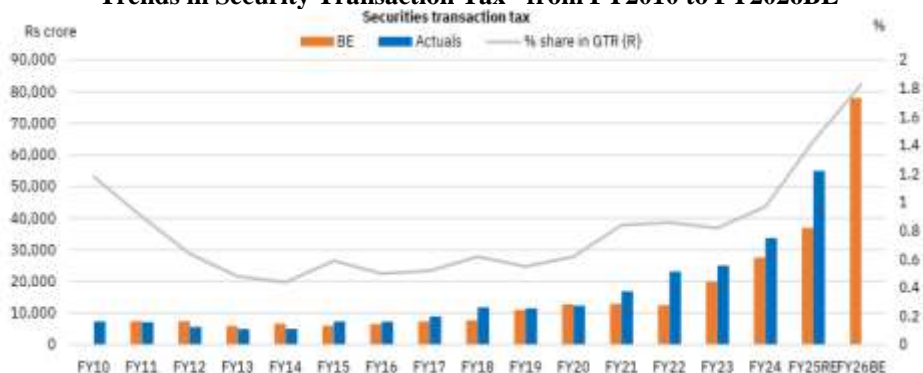
Excise duty collections have shown a declining trend, falling 19.7% since FY2022 (Rs3.9 lakh crore), primarily reflecting lower excise duty on petroleum products. Similarly, customs revenue growth remains subdued, projected at just 2.1% in FY2026BE, impacted by recent duty cuts and the elimination of seven more tariff rates in the Budget.

4.4.5 Securities Transaction Tax (STT)

A notable emerging source of revenue has been the Securities Transaction Tax, which is estimated to surge by 62.8% in FY2025RE and 41.8% in FY2026BE, reaching Rs78,000 crore. This substantial growth is driven by higher equity market participation in India. Consequently, STT's share in gross tax revenues has increased significantly, rising from 0.55% in FY2019 to a projected 1.8% in FY2026BE.

Figure 7

Trends in Security Transaction Tax" from FY2010 to FY2026BE



Source: Budget Documents, NSE EPR. BE: Budget Estimates; RE: Revised Estimates.

4.5 State Share in Tax Revenues and Fiscal Federalism

A crucial aspect of India's taxation framework is the distribution of revenues between the central and state governments. The states' share of gross tax revenues is estimated at 33.3% in

FY2026BE, unchanged from the previous year but significantly lower than 36.6% in FY2019. This proportion remains below the 41% devolution recommended by the 15th Finance Commission.

Figure 8

State's share in gross tax revenues (absolute vs. percentage share)" from FY2010 to FY2026BE



Source: Budget Documents, NSE EPR. BE: Budget Estimates; RE: Revised Estimates

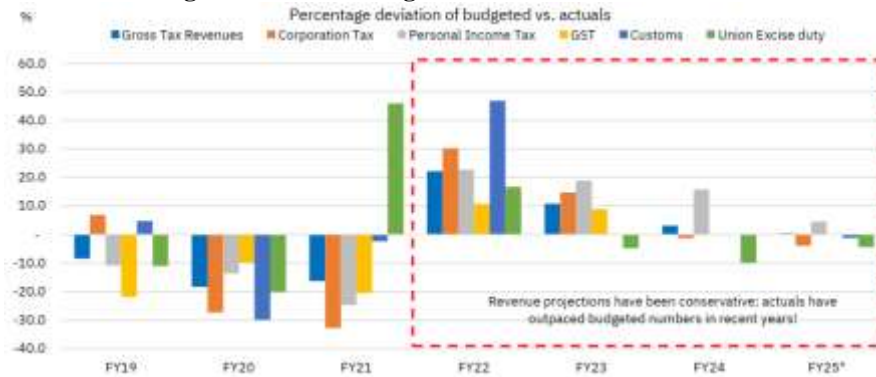
The gap between the recommended and actual devolution rate reflects the central government's increased reliance on cesses and surcharges, which are excluded from the divisible pool of taxes. This trend has implications for fiscal federalism and state finances, potentially constraining the fiscal autonomy and developmental capacity of state governments.

4.6 Conservative Projections and Actual Collections

An interesting pattern observed in recent years is the conservative nature of revenue projections, with actual collections consistently exceeding budgeted estimates. This trend reversed during the pandemic but has returned in the recovery period.

Figure 9

Deviation of budgeted vs. actuals in gross tax revenues" from FY2019 to FY2025



Source: Budget Documents, CMIE Economic Outlook, NSE EPR; Note: For FY25, the comparison is between budgeted and revised numbers

The conservative approach to revenue projections provides fiscal stability and reduces the risk of expenditure cuts or additional borrowing if revenues fall short. However, it also raises questions about the potential underutilization of fiscal space for development expenditure.

5. Discussion and Implications

5.1 Structural Transformation of India's Tax System

The analysis reveals a structural transformation in India's tax system, characterized by:

- Greater reliance on direct taxes:** The increasing share of direct taxes in gross tax revenues indicates a move toward a more progressive tax system with potentially greater stability.

2. **Personal income tax dominance:** The emergence of personal income tax as the largest component of direct taxes represents a fundamental shift from the traditional corporate tax-dominated structure.
3. **Enhanced tax-to-GDP ratios:** The improvement in the tax-to-GDP ratio, particularly for direct taxes, signifies enhanced revenue mobilization capacity and more effective tax administration.

These structural changes have significant implications for tax policy design, fiscal planning, and economic governance. They suggest a more resilient tax system that is less vulnerable to economic shocks and potentially more equitable in its incidence.

5.2 Implications for Fiscal Policy and Economic Growth

The evolving taxation framework has several implications for fiscal policy and economic growth:

1. **Enhanced fiscal stability:** The stronger performance of direct taxes, particularly personal income tax, provides greater fiscal stability and reduced vulnerability to economic fluctuations.
2. **Improved policy space:** The conservative projections and consistent outperformance of tax collections create additional fiscal space for the government, potentially allowing for greater development expenditure.
3. **Formalization dividends:** The robust growth in personal income tax and GST collections reflects increasing formalization of the economy, which has broader benefits for economic efficiency and growth.
4. **Challenges for fiscal federalism:** The below-recommended devolution to states raises concerns about balanced regional development and the fiscal autonomy of state governments.

5.3 Challenges and Potential Risks

Despite the positive trends, several challenges and risks remain:

1. **Corporate tax volatility:** The relatively slower and more volatile growth in corporate tax collections raises concerns about the sustainability of corporate profitability and the impact of tax rates on investment.
2. **Excise and customs revenue weakness:** The declining trend in excise duty collections and subdued customs revenue growth may create pressure on indirect tax collections.
3. **Devolution gap:** The persistent gap between the recommended and actual devolution to states may strain center-state fiscal relations and constrain state finances.
4. **Dependence on market-linked revenues:** The growing significance of Securities Transaction Tax introduces a new element of volatility in tax collections, given its dependence on market conditions.

6. Conclusion and Recommendations

6.1 Conclusion

India's taxation framework has undergone significant transformation during the economic recovery period, characterized by the growing dominance of direct taxes, particularly personal income tax, conservative revenue projections that have consistently been exceeded by actual collections, and improved tax-to-GDP ratios. These changes reflect a structural shift toward a more formalized, compliant, and resilient tax system.

The emergence of personal income tax as the largest component of direct taxes, surpassing corporate tax, represents a fundamental change in India's tax structure and signifies the growing contribution of individual taxpayers to the nation's fiscal resources. The robust growth in GST collections further underscores the benefits of tax formalization and improved compliance.

However, challenges remain, particularly in terms of the devolution gap to states, volatility in certain tax components, and the need to maintain the momentum of tax administration improvements. Addressing these challenges while building on the positive trends will be crucial for ensuring a balanced, equitable, and growth-supportive tax system.

6.2 Recommendations

Based on the analysis, the following recommendations are proposed:

1. **Broaden the tax base:** Continue efforts to expand the tax base through simplified compliance procedures, technological integration, and targeted formalization initiatives.
2. **Balance direct and indirect taxation:** Maintain the shift toward direct taxation while ensuring that indirect taxes remain efficient and equitable, with minimal cascading effects.
3. **Address fiscal federalism concerns:** Consider measures to bridge the gap between recommended and actual devolution to states, potentially by reviewing the structure of cesses and surcharges.
4. **Enhance tax administration:** Build on recent successes in tax administration by further leveraging technology, data analytics, and taxpayer services to improve compliance and reduce evasion.
5. **Stabilize corporate taxation:** Provide a stable and competitive corporate tax environment to encourage investment, innovation, and sustainable growth in corporate tax collections.
6. **Develop forward-looking tax policy:** Design tax policies that anticipate emerging economic trends, digital transformation, and changing business models to ensure sustained revenue growth.
7. **Balance revenue and growth objectives:** Ensure that tax policies balance revenue generation objectives with the need to support economic growth, particularly in labor-intensive and export-oriented sectors.

By implementing these recommendations, India can build on the positive transformation of its tax system and create a more resilient, equitable, and growth-supportive fiscal framework for the future.

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Consumption-Led Growth Strategy: Analyzing the Effectiveness of Tax Relief Measures in India's FY 2025-26 Budget

Dr. Syamlal G.S.*

Abstract

This paper examines India's strategic pivot toward consumption-led growth as evidenced in the FY 2025-26 Union Budget. The research focuses on analyzing the effectiveness of tax relief measures, particularly the revision of income tax slabs and enhancement of tax exemption thresholds, as instruments to stimulate private consumption expenditure while maintaining fiscal prudence. Using data from the latest budget documents and economic indicators, the study evaluates the potential impact of these fiscal interventions on disposable income, consumption patterns, and aggregate demand. The findings suggest that the tax reforms could inject approximately ₹1 lakh crore into the economy, potentially benefiting 98.8 lakh taxpayers earning above ₹10 lakh and generating significant consumption multiplier effects. The research further analyzes the balanced approach adopted by policymakers in stimulating consumption while simultaneously focusing on capital expenditure growth and fiscal consolidation. The paper concludes that while the consumption-boost strategy represents a timely intervention in a moderating growth environment, its effectiveness will depend on consumer sentiment, global economic conditions, and the successful implementation of complementary structural reforms outlined in the budget.

Keywords: Consumption-led growth, tax relief measures, fiscal policy, disposable income, Union Budget, income tax slabs, fiscal prudence, Indian economy, tax exemption thresholds, aggregate demand

1. Introduction

The Union Budget for fiscal year 2025-26 represents a strategic inflection point in India's economic policy framework, marking a deliberate shift toward stimulating private consumption while maintaining the government's commitment to fiscal consolidation and infrastructure development. This dual focus comes at a critical juncture as the economy navigates through moderating growth rates and evolving global economic challenges.

Consumption expenditure has historically been a significant driver of India's economic growth, typically accounting for over 55% of GDP. However, in recent years, concerns have emerged regarding consumption deceleration across various segments of the economy. The FY 2025-26 Budget responds to these concerns through a comprehensive package of tax relief measures designed to increase disposable income and consumer spending power.

At the core of this consumption-led growth strategy are several tax reforms: the revision of income tax slabs, an increase in the zero-tax liability threshold to ₹12 lakh, enhancement of TDS/TCS limits, and expanded deductions for specific demographics such as senior citizens. The economic rationale behind these measures is straightforward—by increasing the disposable income of taxpayers, particularly in the middle and upper-middle income brackets, the government aims to stimulate consumption expenditure, which in turn should generate multiplier effects throughout the economy.

What makes this approach particularly noteworthy is that it occurs within a framework of continued fiscal prudence. The budget maintains its trajectory toward fiscal consolidation with the deficit targeted at 4.4% of GDP, aligning with the glide path established in FY22. This balancing act between consumption stimulus and fiscal responsibility underscores the nuanced approach to economic management in the current environment.

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This research paper seeks to analyze the potential effectiveness of these tax relief measures as drivers of consumption-led growth. Through examination of budget provisions, economic indicators, and relevant literature, the study evaluates the expected impact on different income segments, consumption patterns, and broader economic outcomes. Furthermore, it considers how these measures complement other strategic priorities outlined in the budget, including capital expenditure, sectoral reforms, and medium-term debt management.

2. Review of Literature

The relationship between fiscal policy instruments, particularly tax measures, and private consumption has been extensively studied in economic literature, with specific attention in recent years to emerging economies like India.

Bhasin and Gupta (2018) examined the impact of direct tax reforms on consumption patterns in India, concluding that income tax relief measures have demonstrable positive effects on discretionary consumption, particularly for middle-income households. Their research indicated that for every rupee of tax relief, approximately 0.65 rupees translated into increased consumption expenditure within two quarters. This consumption propensity was found to be higher for tax relief targeted at lower and middle-income segments compared to high-income groups.

Research by Mohanty and Chaturvedi (2021) analyzed the effectiveness of consumption-boosting fiscal measures during economic slowdowns in India. They found that direct tax cuts generally outperformed indirect tax reductions in stimulating aggregate demand, especially when directed toward income groups with higher marginal propensities to consume. Their work also highlighted the importance of timing and targeting in maximizing consumption multipliers from tax relief measures.

In a cross-country analysis of fiscal policy effectiveness, Kapur and Subramanian (2022) compared consumption-oriented fiscal measures across major emerging economies. Their findings suggested that India's high share of consumption in GDP creates favorable conditions for consumption-led growth strategies, though such approaches work best when complemented by strategic infrastructure investments that address supply-side constraints.

The Reserve Bank of India's Report on Currency and Finance (2023) provided a comprehensive assessment of fiscal multipliers in the Indian context, noting that tax relief measures typically generate consumption multipliers of 0.8-1.2 over a two-year period, with higher multipliers during periods of economic uncertainty. The RBI report emphasized that the effectiveness of tax-based consumption stimulus depends significantly on household savings behavior and prevailing economic conditions.

Singh et al. (2023) specifically examined the relationship between changes in income tax structures and household savings and consumption decisions in India. Their research indicated that tax reforms that increase disposable income tend to have both consumption and savings effects, with approximately 60% of incremental disposable income directed toward consumption and 40% toward savings in the short term.

The Economic Survey 2023-24 (Ministry of Finance, 2024) highlighted the importance of reviving private consumption to sustain India's growth momentum, noting the relative weakness in rural consumption and the need for targeted fiscal measures to address this segment.

This literature provides a framework for evaluating the potential effectiveness of the tax relief measures introduced in the FY 2025-26 Budget as instruments for stimulating consumption-led growth. The present research builds on these studies by analyzing the specific tax reforms proposed in the current budget and their potential impact on consumption patterns across different income segments and economic sectors.

3. Methodology and Data Sources

3.1 Research Approach

This study employs a mixed-methods approach combining quantitative analysis of budget provisions and economic indicators with qualitative assessment of policy directives and strategic

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intentions. The methodology focuses on evaluating the potential impact of tax relief measures on disposable income, consumption patterns, and aggregate demand through the following analytical framework:

1. **Tax Relief Impact Analysis:** Quantification of the tax savings across different income brackets resulting from the revised tax slabs and exemption thresholds
2. **Consumption Propensity Assessment:** Estimation of consumption expenditure likely to be generated by increased disposable income, based on historical consumption propensities across income segments
3. **Fiscal Sustainability Evaluation:** Analysis of the balance between consumption stimulus and fiscal prudence through examination of deficit metrics, debt trajectory, and expenditure quality
4. **Sectoral Impact Projection:** Assessment of how consumption increases might affect different sectors of the economy based on consumption basket patterns across income groups
5. **Comparative Policy Analysis:** Contextualizing the current approach within India's broader fiscal policy evolution and comparative international practices

3.2 Data Sources

The research utilizes data from multiple authoritative sources:

- **Union Budget Documents 2025-26:** Detailed provisions of tax reforms, fiscal projections, and sectoral allocations
- **NSE Market Pulse Reports:** Analysis of market implications and sectoral impacts of budget provisions
- **Economic Survey 2024-25:** Macroeconomic context and consumption trends
- **RBI Statistical Bulletins:** Monetary indicators, credit growth, and consumption expenditure data
- **CMIE Consumer Pyramids Household Survey:** Household income, expenditure, and savings patterns
- **National Sample Survey Office Reports:** Consumption expenditure patterns across different income segments

This diverse data ecosystem allows for a comprehensive assessment of both the direct impacts of tax relief measures and their potential spillover effects across the broader economy.

4. Analysis of Tax Relief Measures

4.1 Key Tax Relief Provisions in FY 2025-26 Budget

The Union Budget introduces several significant tax relief measures designed to increase disposable income and stimulate consumption:

1. **Revised Income Tax Slabs:** Restructuring of personal income tax brackets with lower tax rates across multiple income segments
2. **Enhanced Zero-Tax Threshold:** Increase in the zero-tax liability threshold to ₹12 lakh (effectively ₹12.75 lakh with standard deductions)
3. **TDS/TCS Limit Enhancements:** Higher thresholds for Tax Deducted at Source (TDS) on various transactions, including rent payments
4. **Education Remittance Exemptions:** Removal of TCS on foreign remittances for education purposes
5. **Senior Citizen Relief:** Increased deductions specifically targeted at senior citizens

These measures are projected to result in an estimated revenue loss of approximately ₹1 lakh crore, representing a significant fiscal commitment to the consumption-led growth strategy.

4.2 Distributional Impact Analysis

The tax relief measures demonstrate a carefully calibrated approach to targeting different income segments with varying consumption propensities:

1. **Middle-Income Earners (₹5-10 lakh):** This segment is projected to experience tax savings of ₹30,000-₹50,000 annually. Based on consumption propensity patterns, approximately 70-75% of this incremental disposable income is likely to translate into consumption

expenditure, primarily in discretionary categories such as durables, entertainment, and personal care.

2. **Upper-Middle Income Earners (₹10-20 lakh):** Tax savings for this segment are estimated at ₹50,000-₹75,000 annually. With consumption propensities in the 60-65% range, this could generate significant discretionary spending, particularly in categories such as automobiles, electronics, travel, and premium consumer goods.
3. **High-Income Earners (Above ₹20 lakh):** This segment may see tax savings approaching ₹1 lakh annually. While consumption propensities are typically lower (50-55%), the absolute consumption increase could still be substantial, with potential focus on luxury goods, financial services, and high-end durables.

The budget documents indicate that approximately 98.8 lakh tax filers (12.4% of the total ~8 crore) earn above ₹10 lakh annually. This demographic represents a significant consumer base with substantial purchasing power that could drive consumption growth across multiple sectors.

Figure 1
Annual fiscal deficit trend (% GDP)



Source: Budget Documents, NSE EPR. BE: Budget Estimates, RE: Revised Estimates.

4.3 Projected Consumption Impact

Based on the distributional analysis and historical consumption patterns, the ₹1 lakh crore tax relief is projected to generate incremental consumption expenditure of approximately ₹60,000-₹65,000 crore in the short term (1-2 quarters), with potential secondary consumption effects bringing the total consumption stimulus to ₹75,000-₹80,000 crore over the full fiscal year.

This consumption stimulus is expected to have varying impacts across different sectors:

1. **Consumer Discretionary:** Likely to be a primary beneficiary, particularly automobiles, consumer electronics, home improvement, and apparel, which typically exhibit high income elasticity of demand
2. **Services:** Entertainment, dining, travel, and personal services sectors should see significant growth due to their discretionary nature and high income elasticity
3. **Consumer Staples:** More modest impact expected, though premium segments within food, beverages, and household products may benefit from trading-up behavior
4. **Financial Services:** Increased financial product consumption, particularly insurance, investment products, and premium banking services

The timing of the tax relief implementation suggests that consumption effects should begin to materialize from Q1 FY26, with potential acceleration during the festival season in Q3 FY26.

5. Balancing Consumption Stimulus with Fiscal Prudence

5.1 Fiscal Consolidation Trajectory

A distinguishing feature of the FY 2025-26 Budget is its commitment to maintaining fiscal discipline while implementing consumption-boosting measures. The budget targets a fiscal deficit of 4.4% of GDP, continuing the consolidation trajectory from 4.8% in FY25 and aligning with the medium-term glide path established in FY22.

Table 1
Quick glance at the Centre's Fiscal Balances

Items (Rs lakh crore)	FY24	FY24 (% YoY)	FY25RE	FY25RE (% YoY)	% change from FY25BE	FY26BE	FY26BE over FY25RE (% YoY)
Central govt. net tax revenue	23.3	10.9	25.6	9.9	-1.0	28.4	11.0
Gross tax revenues	34.7	13.5	38.5	11.2	0.3	42.7	10.8
Of which:							
Direct Tax	19.6	17.9	22.4	14.4	1.4	25.2	12.7
Corporation tax	9.1	10.3	9.8	7.6	-3.9	10.8	10.4
Income tax	10.4	25.4	12.6	20.3	5.9	14.4	14.4
Indirect Tax	15.1	8.2	16.2	7.1	-1.0	17.5	8.3
Goods and service tax	9.6	12.7	10.6	10.9	-	11.8	10.9
Custom Duties	2.3	9.3	2.4	0.8	-1.2	2.4	2.1
Excise Duties	3.1	-4.3	3.1	-0.1	-4.4	3.2	3.9
States Share	-11.3	19.1	-12.9	13.9	3.2	-14.2	10.5
Transferred to NCCD	-0.1	9.7	-0.1	9.5	1.6	-0.1	8.0
Non-Tax Revenue	4.0	40.8	5.3	32.2	-2.7	5.8	98
Dividends and profits	1.7	71.0	2.9	69.3	0.1	3.3	12.3
Central govt. revenue receipts	27.3	14.5	30.9	13.2	-1.3	34.2	10.8
Non-Debt Capital Receipts	0.6	-17.2	0.6	-1.3	-24.4	0.8	28.8
Divestment proceeds	0.3	-28.1	0.3	-0.4	-34.0	0.5	42.4
Total Receipts	27.9	13.6	31.5	12.8	-1.9	35.0	11.1
Revenue Expenditure	34.9	1.2	37.0	5.8	-0.3	39.4	6.7
Interest Payments	10.6	14.6	11.4	7.0	-2.1	12.8	12.2
Subsidy outgo	4.3	-24.7	4.3	-1.6	-0.1	4.3	-0.4
Capital Expenditure	9.5	28.3	10.2	7.3	-8.3	11.2	10.1
Total Expenditure	44.4	6.0	47.2	6.1	-2.2	50.7	7.4
Fiscal Deficit	16.5	-4.8	15.7	-5.1	-2.7	15.7	0.0
Fiscal Deficit/GDP	5.6		4.8			4.4	

Source: Budget Documents, NSE EPR. BE – Budget Estimate, RE – Revised Estimate. Growth in FY26BE figures are on revised estimates for FY25 (FY25BE)

This disciplined approach is further reinforced by the introduction of a medium-term debt management framework, with a target to reduce the debt-to-GDP ratio to approximately 50% (+/-1%) by 2031. This dual focus on stimulating consumption while maintaining fiscal sustainability represents a nuanced approach to economic management in the current environment.

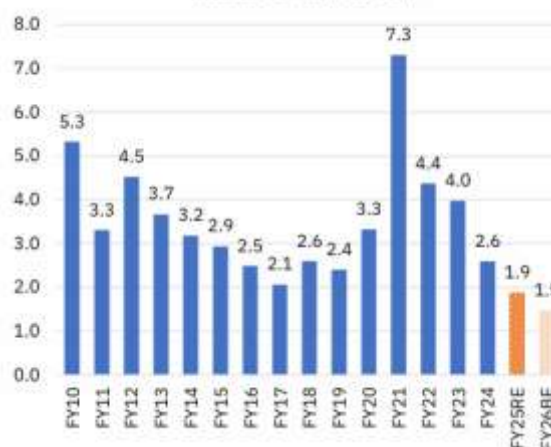
5.2 Expenditure Quality Improvements

The budget demonstrates significant improvements in expenditure quality, which supports the overall economic impact of the consumption stimulus:

1. **Subsidy Rationalization:** The share of subsidies in total expenditure has declined to 8.4%, down substantially from nearly 22% during the COVID year (FY21)
2. **Capital Expenditure Prioritization:** Capital expenditure as a percentage of total expenditure has reached a 31-year high of 22.1%, reflecting the government's continued commitment to infrastructure development
3. **Enhanced Transparency:** Reduced reliance on off-budget financing mechanisms, including internal and extra-budgetary resources (IEBR)

These improvements in expenditure quality suggest that the consumption stimulus is being implemented within a framework of fiscal responsibility, potentially enhancing its credibility and effectiveness.

Figure 2
Trends in Revenue Deficit
Revenue deficit (% of GDP)



Source: Budget Documents, NSE EPR. BE: Budget Estimates; RE: Revised Estimates.

5.3 Financing Strategy

The financing strategy for the budget further underscores the balanced approach to implementing consumption stimulus:

1. **Market Borrowings:** Gross market borrowings are projected at ₹14.8 lakh crore (5.8% increase YoY), while net borrowings are set at ₹10.7 lakh crore (7.4% increase), both aligning with market expectations
2. **Small Savings:** Contribution from small savings to deficit financing is projected at 22%, down from 26.2% in FY25RE
3. **Debt Maturity Profile:** The budget indicates an extension of the debt maturity profile, with the share of 20+ year maturities increasing from 15% in FY19 to 24% in FY26BE

This financing approach aims to implement the consumption stimulus without creating significant market disruptions or crowding out private investment, which could potentially undermine the overall economic impact of the tax relief measures.

6. Complementary Growth Engines

6.1 Strategic Integration with Capital Expenditure

While tax relief measures form the cornerstone of the consumption stimulus strategy, the budget maintains a complementary focus on capital expenditure, which is projected to grow by 10.1% to ₹11.2 lakh crore in FY26BE.

This dual approach recognizes the importance of addressing both demand and supply sides of the economy:

1. **Demand Stimulus:** Tax relief measures increase disposable income and consumption expenditure, boosting aggregate demand in the short term
2. **Supply Enhancement:** Continued infrastructure investments through capital expenditure address supply-side constraints and enhance the economy's productive capacity in the medium to long term

The strategic integration of these approaches suggests a comprehensive growth strategy that aims to generate immediate economic momentum through consumption while laying the groundwork for sustainable long-term growth through infrastructure development.

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6.2 Four Engines of Development

The budget articulates a broader vision centered on four key growth engines—Agriculture, MSMEs, Investment, and Exports—which complement and reinforce the consumption-led growth strategy:

1. **Agriculture:** Initiatives focused on enhancing productivity and rural income growth, which could strengthen rural consumption that has been relatively weaker in recent periods
2. **MSMEs:** Expanded credit access and policy reforms aimed at the MSME sector, which plays a crucial role in both employment generation and fulfilling consumption demand
3. **Investment:** Focus on clean technology and manufacturing, which enhances productive capacity to meet increased consumption demand
4. **Exports:** Trade facilitation measures designed to boost international competitiveness, providing an additional growth channel alongside domestic consumption

These complementary engines suggest that the consumption stimulus is designed not as a standalone measure but as part of a multifaceted growth strategy that addresses various aspects of the economy.

Table 2
A snapshot of Government Finances in 2025-26

Items (Rs lakh crore)	FY24	FY24 (% YoY)	FY25RE	FY25RE (% YoY)	% change from FY25BE	FY26BE	FY26BE over FY25RE (% YoY)
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Capital Expenditure	9.5	28.3	10.2	7.3	-8.3	11.2	10.1
Total Expenditure	44.4	6.0	47.2	6.1	-2.2	50.7	7.4
Fiscal Deficit	16.5	-4.8	15.7	-5.1	-2.7	15.7	0.0
Fiscal Deficit/GDP	5.6		4.8			4.4	

Source: Budget Documents, NSE EPR. BE – Budget Estimate, RE – Revised Estimate. Growth in FY26BE figures are on revised estimates for FY25 (FY25BE)

7. Effectiveness Assessment and Market Implications

7.1 Potential Effectiveness Factors

Several factors will determine the ultimate effectiveness of the tax relief measures as drivers of consumption-led growth:

1. **Consumer Sentiment:** The translation of tax savings into consumption expenditure will depend significantly on consumer confidence and economic outlook perceptions
2. **Distributional Efficiency:** The extent to which tax relief reaches income segments with higher marginal propensities to consume will influence the magnitude of the consumption multiplier

3. **Implementation Timeline:** The speed and clarity of tax reform implementation will affect how quickly the consumption stimulus materializes in the economy
4. **Complementary Policy Support:** The effectiveness of monetary policy, sector-specific initiatives, and structural reforms in supporting the consumption-led growth strategy
5. **External Environment:** Global economic conditions, particularly commodity prices, trade dynamics, and capital flows, will influence the broader context in which the consumption stimulus operates

These factors suggest that while the tax relief measures represent a significant policy intervention, their ultimate impact will depend on both implementation effectiveness and broader economic conditions.

7.2 Market Implications

The initial market reaction to the budget provides some insights into how investors perceive the consumption-led growth strategy:

1. **Equity Markets:** The budget's pro-growth stance, with its focus on both consumption and capital expenditure, was generally well-received by equity markets, though the overall impact was neutral amid other global headwinds
2. **Bond Markets:** The bond markets reacted positively to the fiscal consolidation measures and manageable borrowing projections, with the 10-year G-Sec yield declining marginally on Budget Day
3. **Sector-Specific Impacts:** Consumer discretionary sectors showed more positive responses compared to other segments, reflecting market expectations of increased consumption expenditure

These market responses suggest cautious optimism regarding the potential effectiveness of the consumption stimulus, though investors appear to be balancing this positive factor against broader global economic uncertainties.

8. Conclusion and Policy Implications

8.1 Summary of Findings

This research has analyzed the consumption-led growth strategy embedded in India's FY 2025-26 Budget, focusing particularly on the tax relief measures designed to stimulate private consumption while maintaining fiscal prudence. The key findings include:

1. The tax relief package, estimated to cost approximately ₹1 lakh crore, represents a significant fiscal commitment to boosting consumption, potentially benefiting 98.8 lakh taxpayers earning above ₹10 lakh
2. Based on income segment-specific consumption propensities, the tax relief measures could generate incremental consumption expenditure of ₹60,000-₹65,000 crore in the short term, with potential secondary effects bringing the total consumption stimulus to ₹75,000-₹80,000 crore
3. The consumption stimulus is implemented within a framework of continued fiscal consolidation, with the deficit targeted at 4.4% of GDP and a medium-term debt reduction strategy in place
4. The strategic integration of consumption stimulus with capital expenditure growth and complementary sectoral initiatives suggests a comprehensive approach to economic management

These findings indicate that the consumption-led growth strategy represents a calibrated response to the current economic environment, balancing short-term growth imperatives with medium-term fiscal sustainability.

8.2 Policy Implications

Several policy implications emerge from this analysis:

1. **Targeted Implementation:** Ensuring efficient and timely implementation of the tax relief measures will be crucial to maximizing their consumption impact, particularly as the economy enters FY26
2. **Complementary Monetary Policy:** Appropriate monetary policy support, potentially including accommodative measures if inflation permits, could enhance the effectiveness of the fiscal stimulus

3. **Supply-Side Readiness:** Addressing potential supply constraints in sectors likely to experience increased demand will be important to prevent inflationary pressures from undermining the real consumption impact
4. **Communication Strategy:** Clear communication regarding the tax changes and their implementation will help shape household expectations and potentially accelerate consumption responses
5. **Monitoring and Adaptation:** Establishing robust monitoring mechanisms to track the consumption impact of tax relief measures would allow for potential policy adaptations if the actual impact diverges significantly from projections

8.3 Limitations and Future Research Directions

This research has several limitations that suggest directions for future inquiry:

1. The consumption impact projections are based on historical consumption propensities, which may not fully account for changes in household behavior in the current economic environment
2. The analysis focuses primarily on the immediate impact of tax relief measures, with less detailed examination of longer-term effects on saving, investment, and productivity
3. Regional and demographic variations in consumption responses to tax relief are not fully captured in the aggregate analysis

Future research could address these limitations by examining:

1. Detailed post-implementation data on consumption patterns across different income segments, regions, and product categories
2. Longer-term impacts of the consumption stimulus on economic structure, productivity, and growth sustainability
3. Comparative effectiveness of consumption-led versus investment-led growth strategies in the Indian context

In conclusion, the consumption-led growth strategy embedded in the FY 2025-26 Budget represents a significant policy evolution, aligning fiscal interventions with current economic needs while maintaining a commitment to medium-term sustainability. The effectiveness of this approach will depend on both implementation quality and broader economic developments, but the comprehensive and balanced nature of the strategy suggests potential for meaningful positive impact on India's growth trajectory.

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Academic Achievement Motivation of College Level Students

Dr. Subhashita Raj*

Abstract

The aim of the present study was to seek the relation of gender, caste and residential area with academic achievement motivation of students undergoing study in degree classes. The study was conducted on a sample of 150 students of age range from 17 to 20 years. The sample was drawn randomly from degree colleges of Chapra and Siwan Districts of Bihar. The sample comprised of 75 male and 75 female students. 'Academic Achievement Motivation Test' constructed and standardised by Sharma (2011) has been used to measure academic achievement motivation of subjects. A self made Personal Information Inventory was used to collect personal information of subjects. Application of t' test revealed that male group is significantly higher on academic achievement motivation than female group FC and BC groups are significantly higher on academic achievement motivation than SC group. Urban group is significantly higher on academic achievement motivation than rural group.

Keywords:- Academic, Achievement, Motivation, Urban, Students

Introduction

The motivation applied for achieving academic objective is termed as Academic achievement motivation. It means to move for higher academic success. It is a very important factor behind academic success and works as a drive to push the students for better academic performance. Academic achievement motivation is considered as a key criterion to judge students' total potentialities and capabilities. It includes a range of dimensions that are relevant to success at work but which are not conventionally regarded as being part of student's academic performance. Especially it integrates formally separated approaches as need for academic achievement. Therefore it gives more press for the individuals to have high academic achievement.

The term achievement refers to the degree or the level of success attained in some specific school tasks especially scholastic performance. In this sense, meaning of academic achievement is the attained ability to perform school tasks, which can be general or specific to a given subject matter. Academic achievement or (academic) performance is the extent to which a student, teacher or institution has achieved in their short or long-term educational goals. Cumulative GPA and completion of educational degrees such as High School and bachelor's degrees represent academic achievement. It is commonly measured through examinations or continuous assessments and indicates the learning outcomes of student and a percentage of marks obtained during board examination. Academic achievement of those learning outcomes requires a series of planned and organized experiences. Good (1973) has defined academic achievement as 'knowledge attitude' or skill developed in the school subject usually designed by teacher or by test scores or by marks assigned by teacher or by both. Consequently academic Achievement could be defined as self-perception and self-evaluation of one's objective success.

Academic achievement is not a uni-dimensional rather a multi- dimensional phenomenon. So, differences in academic achievement can't be attributed to one single factor but to a large number of factors that affect academic achievement. The factors on which achievement depends are innumerable e.g. intelligence, motivation, creativity. achievement motivation, personality, socio-economic status etc. It is a common observation that success in the academic achievement serves as an emotional tonic and any damage done to a child may be partially repaired by the success in school. Sound development in academic can be matched with pillars on which entire future structure of

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personality stands and a good academic record of students is an index of an effective educational system. In more general term, academic achievement means the achievement of the pupils in so-called academic subjects. Therefore, academic achievement may be defined as a measure of knowledge, understanding or skills in a specific subject or a group of subjects.

Motivation generates enthusiasm which assists achieving different types of goal. This is called achievement motivation. The concept of achievement motivation has been developed by McClelland et al. (1953). They defined this concept as "concern over competition with standards of excellence." e.g. winning or doing better than someone else.

Atkinson (1958) come to the conclusion that in the individual there is the need for achievement. Forms of process in context of achievement motivation is

$$\text{Goal/Target} + \text{Ability} + \text{Motivation} = \text{Achievement Motivation}$$

Achievement motivations direct the people and motivate the people to achieve the goal. Therefore achievement motivation has been considered as an important concept in the dynamics of human behavior. Considering education and learning of students, achievement motivation is also important for child academic performance. It helps the students to form a positive view for academic success.

Academic achievement motivation is a crucial determinant of students' educational success and future career prospects. It refers to the intrinsic and extrinsic factors that drive students to pursue academic goals, overcome challenges, and excel in their studies (Schunk & DiBenedetto, 2021). The study of academic motivation is particularly significant in the context of male and female urban students stemming from varying caste and inhabitation.

Education serves as a powerful tool for social mobility and personal development. However, disparities in educational opportunities among FC, BC and SC continue to persist, impacting students' motivation levels and academic performance. Understanding the dynamics of academic motivation across these three caste groups of urban and rural areas can provide valuable insights for educators, policymakers, and stakeholders in designing equitable and effective educational interventions.

The importance of fostering academic achievement motivation cannot be overstated. Motivated students are more likely to engage actively in their learning, exhibit persistence in the face of challenges, and achieve their academic goals (Deci & Ryan, 2020). Conversely, a lack of motivation can lead to disengagement, low academic performance, and higher dropout rates.

Previous studies show that academic achievement motivation is influenced by parental support and involvement (Fan & Chen, 2022); teacher-student relationships (Wentzel, 2022); peer influence, school environment (Anderson & Minke, 2021); socio-economic status (SES) (Johnson & Mortimer, 2023).

While numerous studies have explored academic motivation, limited research has directly compared the roles of gender and caste in academic achievement motivation of students undergoing study in degree colleges of Chapra and Siwan Districts of Bihar. The objectives of the study are :

1. To measure and compare academic achievement motivation of male and female students.
2. To measure and compare academic achievement motivation of FC, BC and SC students.
3. To measure and compare academic achievement motivation of rural and urban students.

Hypotheses

- a) There will be significant difference between male and female groups on academic achievement motivation.
- b) There shall be significant differences among FC, BC and SC groups on academic achievement motivation.
- c) There will be significant difference between rural and urban groups on academic achievement motivation.

Method

The study was conducted on a sample of 150 adolescents of age range from 17 to 20 years. The sample was drawn randomly from degree college of Chapra and Siwan Districts of Bihar. The sample comprised of 75 male and 75 female students.

Tools/Instruments

'Academic Achievement Motivation Test' constructed and standardised by Sharma (2011) has been used to measure academic achievement motivation of subjects. A self made Personal Information Inventory was used to collect personal information of subjects.

Results and Discussion

Gender variable has been found significantly influencing academic achievement motivation. Male group has obtained significantly higher mean academic achievement motivation score than female group. The mean academic achievement motivation score of boy group is 31.314 while that of girl group is 28.568. The obtained 't' ratio is 4.206 (Table-1). This 't' ratio is higher than the required value for significance at .01 level. So there exists significant difference between boy and girl groups on academic achievement motivation. Significantly higher mean score of boy group than girl group proves that male subjects have significantly higher motivation for academic achievement than female subjects. Our findings support the finding of Sharma (2014) who found male subjects significantly higher on academic achievement motivation than female subjects. Our findings do not support the findings of Bhawsinka and Rai (2019), Adsul and Kamble (2009) and Begum and Phukan (2001) who reported insignificant difference between male and female subjects on their achievement motivation in academic field. Our finding contradicts the finding of Kaur (2016) who reported female teachers significantly higher on achievement motivation than male teachers.

Table – 1

Showing Means, S.Ds. and 't' ratios of Academic Achievement Motivation Scores- Male and Female Groups.

Groups	N	Means	S. D.	df	't' ratio	Level of Sign.
Boys	75	31.314	4.062	148	4.206	0.01
Girls	75	28.568	3.933			

Caste variable has been found influencing academic achievement motivation of college level students. This variable has displayed its effect on academic achievement motivation. Subjects stemming from scheduled castes (SC) have obtained significantly lower mean score in comparison to subjects stemming from FC and BC. The mean academic achievement motivation scores of FC, BC and SC groups are 32.052, 31.015 and 24.931 respectively. The obtained 't' ratios for FC X BC; FC X SC and BC x SC compared groups are 1.382; 8.258 and 7.648 respectively (Table-2). There has not been found significant difference between BC and FC groups. But both FC and BC groups have obtained significantly higher mean academic achievement motivation scores than SC group. It appears that social and educational status of BC and FC groups have been almost equated and this has resulted in somewhat equal level of academic achievement motivation of FC and BC groups. But in the case of SC students, social and educational status of SC group appear to have not been improved to the level of BC and FC groups. This has resulted in significantly lower mean academic achievement motivation score of SC group than BC and FC group. Furthermore, socio-economic status of SC students is lower than that of BC and FC students. Bhandari and Pawar (2015) reported significant positive correlation between SES and achievement motivation of adolescents. Low SES of SC students might have contributed to their significantly lower academic achievement motivation in comparison to BC and FC students.

Table – 2
Showing Means, S.Ds. and ‘t’ ratios of Academic Achievement Motivation Scores- FC, BC and SC/ST Groups.

Groups	N	Means	S. D.	df	‘t’ ratios	Level of Sign.
FC	50	32.052	4.105	113	1.382	NS
BC	65	31.015	3.836			
FC	50	32.052	4.105	83	8.258	0.01
SC/ST	35	24.931	3.772			
BC	65	31.015	3.836	98	7.648	0.01
SC/ST	35	24.931	3.772			

Residential area has been found significantly influencing academic achievement motivation. Urban group has obtained significantly higher mean academic achievement motivation score than rural group. The mean academic achievement motivation score of urban group is 30.955 while that of rural group is 29.166. The obtained ‘t’ ratio is 2.702 (Table-3). This ‘t’ ratio is higher than the required value for significance at .01 level. So there exists significant difference between urban and rural groups on academic achievement motivation. Significantly higher mean score of urban group than rural group proves that urban subjects have significantly higher motivation for academic achievement than rural subjects. Our findings support the findings of Bamman and Ksheersagar (2008) who reported that urban students perform better in their academic field. Mishra (2015) reported that urbans have better achievement motivation in their academic field. It appears that high level of competition and professionalism experienced by urbans has contributed to their significantly higher level of academic achievement motivation. Rural and urban cultures differ on value orientation. Professional values are more stressed in urban societies. On the other hand in rural culture fraternity, co-operation and sacrifice are stressed. Due to differences on value-orientation urban-rural differences on academic achievement motivation might have been manifested.

Table – 3
Showing Means, S.Ds. and ‘t’ ratios of Academic Achievement Motivation Scores- Rural and Urban Groups.

Groups	N	Means	S. D.	df	‘t’ ratios	Level of Sign.
Rural	85	29.166	3.911	148	2.702	0.01
Urban	65	30.955	4.099			

Conclusions

The study finally led to the following conclusions :-

1. Male group is significantly higher on academic achievement motivation than female group.
2. FC and BC groups are significantly higher on academic achievement motivation than SC group.
3. Urban group is significantly higher on academic achievement motivation than rural group.

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India's Evolving Role and its Significance in the Changing Landscape of International Relations

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Abstract

In an increasingly interconnected and interdependent world, no country can afford to exist in isolation. International relations play a pivotal role in shaping a nation's trajectory—affecting everything from its economic prosperity and national security to its cultural diplomacy and global image. The importance of international relations extends across political, strategic, and humanitarian dimensions, making them a cornerstone of modern statecraft.

International relations help countries protect their interests, prosper economically, promote peace, and navigate global complexities. Whether it's for trade, security, diplomacy, or development, International relation is the backbone of a country's interaction with the world.

In the 21st century, the global order is witnessing a profound transformation marked by the rise of new powers and shifting geopolitical alignments. India, as the world's largest democracy and one of the fastest-growing economies, is emerging as a key actor in this changing international landscape. This paper explores India's expanding global role through its economic growth, strategic engagements, diplomatic initiatives, climate leadership, and soft power. It also assesses the challenges India faces as it strives to assert its influence in a multipolar world.

Keywords :- International Relations, India, 21st Century, Role, Policy etc.

Introduction

The idea of neighborhood has traditionally been viewed by India's foreign policy as a network of expanding concentric circles centered on shared historical and cultural characteristics. Up to 44 million individuals of Indian descent reside and work overseas, serving as a vital conduit to their homeland. Assuring their welfare and well-being within the bounds of the laws of the nation in which they reside has been a key component of India's foreign policy. India's participation in international organizations, diplomatic initiatives, and economic alliances all contribute to its diverse position in international affairs. It actively participates in regional arrangements, plays a significant role in the UN, and is a member of the G20 and BRICS. It also contributes to world stability and development by resolving conflicts and conducting peacekeeping missions.

India, the world's largest democracy and a rising economic and geopolitical power, is asserting a more prominent role on the global stage. With a combination of strategic diplomacy, robust economic growth, technological advancement, and soft power, India is positioning itself as a key player in the evolving multipolar world order.

India's role in international relations has evolved significantly, particularly in the 21st century, as it seeks to navigate a rapidly changing global landscape. As a major emerging power, India has increasingly asserted itself on the global stage, both regionally and internationally, and has adapted its foreign policy to meet the challenges of a multipolar world. India's growing influence in the 21st century is a key aspect of the shifting power dynamics in global politics. As a rapidly developing nation, India has increasingly positioned itself as a global player, utilizing its economic, military, and diplomatic strengths to assert its influence on the world stage. Here are several key factors driving India's influence and its role in the changing landscape of international relations:

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1. India's Foreign Policy: The Evolution

India's foreign policy has evolved from a period of non-alignment and post-independence isolationism to a more assertive and active role in global affairs. Several key factors shape India's approach to international relations:

- **Non-Alignment and Sovereignty:** During the Cold War, India followed the Non-Aligned Movement (NAM), focusing on maintaining its sovereignty and independence from the influence of both the U.S. and the Soviet Union. India's foreign policy emphasized peace, disarmament, and cooperation among developing nations.
- **Shift to Pragmatism:** After the Cold War, particularly post-1991, India transitioned to a more pragmatic foreign policy, embracing economic reforms and expanding its global outreach. India focused on securing its national interests, both economically and strategically, while maintaining its commitment to multilateralism.
- **Strategic Autonomy:** India emphasizes strategic autonomy, balancing relationships with various global powers, including the U.S., Russia, China, and regional neighbors. This allows India to engage in flexible diplomacy, avoiding over-dependence on any single country.

2. India's Global and Regional Role

India's foreign policy is influenced by its economic growth, security concerns, regional ambitions, and commitment to global governance. Here's a breakdown of how India plays a pivotal role in both regional and global affairs:

Regional Security and Influence

- **South Asia:** India is the dominant power in South Asia, and its foreign policy has traditionally been centered around maintaining regional stability. India's relationship with Pakistan has been tense, primarily due to the unresolved Kashmir issue and cross-border terrorism. Despite these tensions, India plays a key role in regional organizations like SAARC and BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation).
- **China:** The India-China relationship is complex, balancing economic cooperation with strategic competition. Border disputes and India's concerns about China's growing influence in the region, including the Belt and Road Initiative (BRI), have led to a strategic rivalry. India has taken measures to strengthen its defense and diplomatic alliances to counterbalance China's growing regional influence.
- **Indo-Pacific:** India is increasingly focusing on the Indo-Pacific region, where its economic and security interests intersect with those of key global powers. As a founding member of the Quad (Quadrilateral Security Dialogue) with the U.S., Japan, and Australia, India plays a crucial role in promoting a free and open Indo-Pacific, countering China's influence, and ensuring regional stability.

Global Engagement

- **United Nations and Global Governance:** India has long advocated for reform of the United Nations Security Council (UNSC) to reflect contemporary realities. As the world's largest democracy and a significant contributor to UN peacekeeping missions, India seeks a permanent seat on the UNSC. India is also active in global institutions like the World Trade Organization (WTO) and the World Health Organization (WHO).
- **Climate Change Leadership:** India has positioned itself as a leader in climate diplomacy. It has made significant commitments to renewable energy, aiming to become a global leader in clean energy through initiatives like Solar Alliance and substantial investments in wind and solar power. India's role in climate change negotiations has become increasingly important as it balances development with environmental sustainability.
- **Global South and Development:** India's strong leadership in the Global South is a defining aspect of its foreign policy. It has advocated for the interests of developing nations,

especially in forums like the Group of 77 (G77), and through its cooperation with Africa and Latin America. India's foreign policy is underpinned by a commitment to a multipolar world order, where emerging economies have a larger voice in global governance.

3. Strategic Partnerships

India's diplomatic strategy has increasingly focused on building strategic partnerships with global powers, including the United States, Russia, Japan, and the European Union. These partnerships are essential for India's security, economic growth, and global influence.

U.S.-India Relations

- **Strategic and Economic Ties:** U.S.-India relations have evolved significantly in recent years, marked by greater cooperation in defense, trade, and technology. The U.S.-India Strategic Partnership has expanded in areas such as defense technology transfer, counterterrorism, and regional security. India's growing role in global supply chains and trade has further solidified the relationship, making the U.S. a crucial partner in India's economic growth.
- **Defense Cooperation:** India and the U.S. have deepened defense cooperation, including joint military exercises, arms sales, and intelligence sharing. The Lemur Framework for defense cooperation and agreements like COMCASA (Communications Compatibility and Security Agreement) and BECA (Basic Exchange and Cooperation Agreement) reflect the growing convergence between the two countries.

Russia-India Relations

- **Historical Ties:** India and Russia share deep historical ties, especially in defense and energy cooperation. Russia has been a key supplier of military equipment to India, and the two countries cooperate closely in sectors like space exploration, nuclear energy, and counterterrorism.
- **Energy Cooperation:** Russia has been a crucial partner in energy security for India. The Russia-India-China (RIC) trilateral forum is another avenue for cooperation on global governance issues and security concerns.

India and the European Union

- **Economic and Diplomatic Relations:** India's ties with the European Union (EU) are growing, particularly in trade, technology, and climate change cooperation. The EU is one of India's largest trading partners, and India is an important part of the EU's strategic outlook for the Indo-Pacific. The EU-India Free Trade Agreement negotiations reflect the increasing importance of the partnership.
- **Multilateral Diplomacy:** India and the EU collaborate in several multilateral forums, including the World Trade Organization and the United Nations. India's diplomatic approach, especially on issues of development, trade, and climate change, aligns closely with EU priorities.

4. Military Modernization and Defense Policy

India's military modernization is a critical aspect of its growing influence. With a large and capable military, India seeks to assert its regional dominance and secure its interests in the Indian Ocean and beyond.

- **Defense Modernization:** India has been modernizing its armed forces, focusing on technological advancements, naval capabilities, and nuclear deterrence. The focus on expanding India's nuclear triad, along with cutting-edge defense systems, reflects India's desire to be a strategic military player in global security.
- **Regional Security Alliances:** India has deepened its defense ties with countries such as Australia, Japan, and the U.S., focusing on joint military exercises and intelligence sharing to ensure regional security, particularly in the face of China's growing military assertiveness.

5. Challenges to India's Role

Despite its growing influence, India faces several challenges in shaping its international role:

- **Internal Issues:** India's economic inequality, social unrest, and infrastructure challenges remain significant domestic hurdles that affect its global standing. Addressing these issues will be crucial for sustaining India's rise on the international stage.
- **Regional Instability:** India's relations with neighboring countries like Pakistan and China are fraught with tension. The unresolved Kashmir issue with Pakistan, ongoing territorial disputes with China, and the broader security challenges in South Asia will continue to influence India's foreign policy.
- **Balancing Act:** India must carefully balance its relationships with the U.S., Russia, China, and regional neighbors. India's emphasis on strategic autonomy often requires a delicate balancing act, particularly as its international influence grows.

Conclusion

India's role in international relations is becoming increasingly prominent as it navigates a multipolar world. Its economic rise, strategic partnerships, and growing influence in global governance make it a key player in shaping the future of international relations. While challenges remain, India's trajectory suggests that it will continue to play a central role in global affairs, particularly in the Indo-Pacific, climate diplomacy, defense, and multilateral governance.

India's growing global role reflects its ambition to shape a fair, multipolar, and rules-based international order. As it balances its strategic interests with developmental needs, India is not just a rising power—but a responsible stakeholder in global affairs. Its trajectory will likely define the balance of power in the 21st century.

In conclusion, India's role in international relations is dynamic and continues to evolve as it adapts to the changing global landscape. The country's rise is reshaping the balance of power, and its active participation in global governance and security will only increase its influence on the world stage in the coming decades.

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Bianchi Type-I Cosmological Model with Jerk Parameter in Modified Gravity

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Abstract

In this paper we investigate a cosmological model with homogeneous and anisotropic properties, namely Bianchi type-I model. By considering Einstein's field equations in Modified $f(R, T)$ gravity, we solve them with the choice $f(R, T) = R + 2f(T)$, where R represents the Ricci scalar and T denotes the trace of the stress-energy momentum tensor T_{ij} . It is worth noting that the cosmic jerk parameter j is constant. We analyze the physical and geometrical properties of the models, and also employ the statefinder diagnostic pair to gain insight into the geometrical nature of the model.

Introduction

Now a day the cosmological constant problem is very interesting to researchers. The cosmological constant was originally given by Einstein in his field equations. To resolve the problem of the huge difference between the effective cosmological constant observed today and vacuum energy density predicted by quantum field theory, several mechanisms have been proposed [1]. A possible way is to consider a varying cosmological term. Due to the coupling of the dynamic degree of freedom with the matter fields of the universe, Λ relaxes to its present small value through the expansion of the universe and creation of particles. From this point of view, the constant is small because the universe is so old. Models with a dynamically decaying cosmological term representing the energy density of vacuum have been studied by several authors [2-4]. The observational and theoretical features suggest that the most natural candidate for the missing energy is the vacuum energy density or the cosmological constant Λ but selection of the cosmological constant as vacuum energy faces a serious fine-tuning problem, which demands that the value of Λ must be 120 orders of magnitude greater than its presently observed value.

One of the interesting and prospective version of modified gravity theories is the $f(R, T)$ gravity proposed by Harko et al. [5], where the gravitational lagrangian is given by an arbitrary function of the Ricci scalar R and of the trace of the stress-energy tensor T . They have obtained the gravitational field equations in the metric formalism, as well as, the equation of motion for test particles, which follow from the covariant divergence of the stress-energy tensor. The $f(R, T)$ gravity models can explain the time cosmic accelerated expansion of the universe. Recently, Chaubey and Sukla [6], Adhav [7], Samanta [8], Reddy et al. [9-11] have studied cosmological model in $f(R, T)$ gravity in different Bianchi type space-time. Tiwari et al. found an exact solution of the field equations of $f(R, T)$ gravity for LRS Bianchi type-I model by taking the deceleration parameter to be a linear function of the Hubble parameter [12]. Sofuoğlu reconstructed the $f(R, T)$ model in which the Gödel universe is allowed [13]. Tiwari et al., studied the time dependence of the gravitational and cosmological constant by taking into account Bianchi type-I space-time in $f(R, T)$ theory [14]. Tiwari and Beesham investigated Bianchi type-I spacetime with decaying cosmological term in this theory [15].

In recent years Bianchi universes are playing an important role in observational cosmology, since the WMAP data [16-18] seem to require an addition to the standard cosmological model with positive

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cosmological constant that bears a likeness to the Bianchi morphology [19-24]. There are various studies by assuming varying vacuum energy density in this context [25-40]. According to this, the universe should reach to a slightly anisotropic special geometry in spite of the inflation, contrary to generic inflationary models [41-47] suggesting a non-trivial isotropization history of universe due to the presence of an anisotropic energy source. In order to explain the homogeneity and flatness of the presently observed universe, it is usually assumed that this undergone a period of exponential expansion [41, 43-45]. Mostly the expansion of the universe is described within the framework of the homogeneous and isotropic Friedman-Robertson-Walker (FRW) cosmology. The reasons for this are purely technical. The simplicity of the field equations and the existence of analytical solutions in most of the cases have justified this over simplification for the geometry of space-time. However, there are no compelling physical reasons to assume the former before the inflationary period. To drop the assumption of homogeneity would make the problem intractable, which the isotropy of the space is something that can be relaxed and leads to anisotropy. Several authors [48-53] have studied particular case of anisotropic models and found that the scenario predicted by FRW model stand essentially unchanged even when large anisotropies were present before the inflationary period.

In this paper, we investigate the modified $f(R, T)$ gravity theory in a Bianchi type-I cosmology by considering variable G and Λ . For a specific choice of $f(R, T) = R + 2f(T)$, where $f(T) = -\lambda T$, λ an arbitrary constant, some exact solutions of the field equations have been generated explicitly. In sect.2, we give a basic formalism of $f(R, T)$ gravity, the field equations are presented in sect.3, where as the solutions are derived and discussed in sect.4, and finally follows the conclusion in sect. 5.

2. The Basic Formalism of $f(R, T)$ Gravity

The gravitational action of $f(R, T)$ gravity is given by [5]

$$S = \frac{-1}{16\pi Gc^4} \int f(R, T) \sqrt{-g} d^4x + \int L_m \sqrt{-g} d^4x, \quad (1)$$

Where $f(R, T)$ is an arbitrary function of the Ricci Scalar R and the trace T of the energy-momentum tensor $T_{\mu\nu}$ i.e. ($T = g^{\mu\nu}T_{\mu\nu}$), and L_m corresponds to the matter Lagrangian density and g is the determinate of metric tensor $g_{\mu\nu}$.

Using natural units ($c = 1 = 8\pi G$), a variation of action equation (1) with respect to metric tensor gives the following field equations of $f(R, T)$ gravity

$$\begin{aligned} f_R(R, T)R_{\mu\nu} - \frac{1}{2}f(R, T)g_{\mu\nu} - (g_{\mu\nu}\square - \nabla_\mu\nabla_\nu) f_R(R, T) \\ = -T_{\mu\nu} - f_T(R, T)T_{\mu\nu} - f_T(R, T)\Theta_{\mu\nu}, \end{aligned} \quad (2)$$

Where $f_R = \frac{\partial f(R, T)}{\partial R}$, $f_T = \frac{\partial f(R, T)}{\partial T}$, $\square = \nabla^\mu\nabla_\mu$ is the D'Alembert operator, ∇_μ is the covariant derivative, $R_{\mu\nu}$ is the Ricci tensor, and $T_{\mu\nu}$ is the energy momentum tensor given by

$$T_{\mu\nu} = \frac{-2}{\sqrt{-g}} \frac{\delta(\sqrt{-g}L_m)}{\delta g^{\mu\nu}} \quad (3)$$

And $\Theta_{\mu\nu}$ is

$$\Theta_{\mu\nu} = g^{\alpha\beta} \frac{\delta T_{\alpha\beta}}{\delta g^{\mu\nu}}. \quad (4)$$

Using equations (3) and (4), we obtain

$$\Theta_{\mu\nu} = -2T_{\mu\nu} + g_{\mu\nu}L_m - 2g^{\alpha\beta} \frac{\partial^2 L_m}{\partial g^{\mu\nu} \partial g^{\alpha\beta}}. \quad (5)$$

By contracting equation (2), we get

$$\begin{aligned} f_R(R, T)R + 3f_R(R, T) - 2f(R, T) \\ = \{-1 - f_T(R, T)\}T - f_T(R, T)\Theta, \end{aligned} \quad (6)$$

where $\Theta = g^{\mu\nu}\Theta_{\mu\nu}$. If we assume that the matter Lagrangian density L_m depends on the metric tensor components $g_{\mu\nu}$ and does not depend on its derivatives, then equation (3) reads

$$T_{\mu\nu} = g_{\mu\nu}L_m - 2 \frac{\partial L_m}{\partial g^{\mu\nu}}. \quad (7)$$

If the matter-energy source of the universe is a perfect fluid, then the energy-momentum tensor can be defined as

$$T_{\mu\nu} = (\rho + p)u_\mu u_\nu + pg_{\mu\nu}, \quad (8)$$

where ρ and p are the energy density and the pressure of the fluid, respectively, and u^μ is the four velocity vector satisfying $u^\mu u_\mu = -1$ and $u^\nu \nabla_\mu u_\nu = 0$. Now, for a perfect fluid distribution one can write the matter Lagrangian density as $L_m = -p$, which on using, equation (5) gives

$$\Theta_{\mu\nu} = -pg_{\mu\nu} - 2T_{\mu\nu}. \quad (9)$$

Then the field equations (2) take the form

$$\begin{aligned} f_R(R, T)R_{\mu\nu} - \frac{1}{2}f(R, T)g_{\mu\nu} - (\nabla_\mu \nabla_\nu - g_{\mu\nu}\square)f_R(R, T) \\ = -T_{\mu\nu} + f_T(R, T)(T_{\mu\nu} + pg_{\mu\nu}). \end{aligned} \quad (10)$$

We note that Harko et al. [5] have mentioned the following functional forms of $f(R, T)$ function:

$$f(R, T) = \begin{cases} R + 2f(T) \\ f_1(R) + f_2(T) \\ f_1(R) + f_2(R)f_3(T) \end{cases} \quad (11)$$

In this paper, we focus on the first one of these functional forms i.e., $f(R, T) = R + 2f(T)$ and choose $f(T) = -\lambda T$, where λ is an arbitrary constant. For this choice of the function, equation (10) becomes

$$R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu} = -(1 + 2\lambda)T_{\mu\nu} + \lambda(-T - 2p)g_{\mu\nu}. \quad (12)$$

A comparison of equation (12) with the following Einstein's field equations

$$R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu} = -T_{\mu\nu} + \Lambda g_{\mu\nu} \quad (13)$$

yields $\Lambda = \Lambda(T) = -\lambda(T + 2p)$. Thus, one can write the field equations of $f(R, T)$ gravity with varying cosmological constant Λ as

$$R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu} = -(1 + 2\lambda)T_{\mu\nu} + \Lambda g_{\mu\nu}. \quad (14)$$

3. Line Element and Field Equations

The spatially homogeneous and anisotropic Bianchi type-I universe model is described by the line element

$$ds^2 = A^2 dx^2 + B^2 dy^2 + C^2 dz^2 - dt^2, \quad (15)$$

where A, B, C are time dependent metric potentials. For the model defined by equation (15), the field equations (14) in $f(R, T)$ gravity give the following system of equations

$$\frac{\ddot{B}}{B} + \frac{\dot{C}}{C} + \frac{\dot{B}\dot{C}}{BC} = \lambda\rho - (1 + 7\lambda)p, \quad (16)$$

$$\frac{\dot{A}}{A} + \frac{\dot{C}}{C} + \frac{\dot{A}\dot{C}}{AC} = \lambda\rho - (1 + 7\lambda)p, \quad (17)$$

$$\frac{\dot{A}}{A} + \frac{\dot{B}}{B} + \frac{\dot{A}\dot{B}}{AB} = \lambda\rho - (1 + 7\lambda)p, \quad (18)$$

$$\frac{\dot{A}\dot{B}}{AB} + \frac{\dot{B}\dot{C}}{BC} + \frac{\dot{A}\dot{C}}{AC} = (1 + 3\lambda)\rho - 5\lambda p, \quad (19)$$

where the dot ($\dot{}$) represent time derivative. Using the expression of the trace of the energy-momentum tensors $T = -\rho + 3p$, yields $\Lambda = \lambda(\rho - 5p)$.

The spatial volume V , mean scale factor a and the mean Hubble parameter H for the Bianchi type-I universe are given by

$$V = ABC, \quad (20)$$

$$a = (ABC)^{\frac{1}{3}} = V^{\frac{1}{3}}, \quad (21)$$

$$H = \frac{1}{3}(H_x + H_y + H_z), \quad (22)$$

where H_x, H_y and H_z are directional Hubble parameters in the directions of x, y and z , respectively, which are defined as

$$H_x = \frac{\dot{A}}{A}, \quad H_y = \frac{\dot{B}}{B}, \quad H_z = \frac{\dot{C}}{C}. \quad (23)$$

Equations (22) and (23) provide us an important relation:

$$H = \frac{\dot{a}}{a} = \frac{1}{3}(H_x + H_y + H_z) \tag{24}$$

The expansion rate θ and shear scalar σ are obtained as follows

$$\theta = u^\mu_{;\mu} = 3 \frac{\dot{a}}{a}, \tag{25}$$

$$\sigma^2 = \frac{1}{2} \sigma_{\mu\nu} \sigma^{\mu\nu} = \frac{k^2}{a^6}, \tag{26}$$

where $\sigma_{\mu\nu}$ is the shear tensor and k is a constant which comes from the anisotropy of the model and will be mentioned again in the following.

For Bianchi type-I model, the average anisotropy parameter \bar{A} and deceleration parameter q are defined as

$$\bar{A} = \frac{1}{3} \sum_{i=1}^3 \left(\frac{H_i - H}{H} \right)^2 \tag{27}$$

and
$$q = -\frac{a\ddot{a}}{\dot{a}^2} = -\left(\frac{\dot{H} + H^2}{H^2} \right). \tag{28}$$

Thus, field equations (16)-(19), can be written in terms of Hubble and deceleration parameters as

$$3H^2 = (1 + 2\lambda)\rho + \sigma^2 + \Lambda, \tag{29}$$

$$H^2(2q - 1) = (1 + 2\lambda)p + \sigma^2 - \Lambda, \tag{30}$$

One can express equation (29) in the form of

$$\frac{\sigma^2}{3H^2} = 1 - \frac{(1+2\lambda)\rho}{3H^2} - \frac{\Lambda}{3H^2} = 1 - \Omega - \Omega_\Lambda, \tag{31}$$

where $\Omega_\Lambda = \frac{\rho_\Lambda}{\rho_c}$ is cosmological constant density parameter and $\Omega = \Omega_m + \Omega_\lambda$ is total density parameter. Here $\rho_c = 3H^2$ is critical density, $\rho_\Lambda = \Lambda$ is cosmological constant density, $\Omega_m = \frac{\rho}{\rho_c}$ is density parameter of matter and $\Omega_\lambda = \frac{\rho_\lambda}{\rho_c}$, with $\rho_\lambda = 2\lambda\rho$, may be considered as a correction term to density parameter of matter which comes from $f(R, T)$.

From equations (16) and (17) we have

$$\frac{A}{A} - \frac{B}{B} = \frac{k_1}{a^3}. \tag{32}$$

A similar calculation with equations (17) and (18) leads to

$$\frac{B}{B} - \frac{C}{C} = \frac{k_2}{a^3}, \tag{33}$$

Where k_1 and k_2 are constants of integration. On integrating equations (32) and (33) we obtain

$$A = m_1 a \exp \left[\frac{2k_1 + k_2}{3} \int \frac{dt}{a^3} \right], \tag{34}$$

$$B = m_2 a \exp \left[\frac{k_2 - k_1}{3} \int \frac{dt}{a^3} \right], \tag{35}$$

$$C = m_3 a \exp \left[-\frac{k_1 + 2k_2}{3} \int \frac{dt}{a^3} \right], \tag{36}$$

where m_1, m_2 and m_3 are constants of integration, satisfying $m_1 m_2 m_3 = 1$.

4. Solution of the Field Equations

Equations (16)-(19) are a system of four independent equations in five unknowns, these are: A, B, C, ρ , and p . To solve the system of equations completely, we need two physically viable assumptions. Thus, firstly, we adopt a kinematical condition which is constant jerk parameter j . The jerk parameter is a dimensionless third derivation of scale factor with respect to time t . Jerk parameterization provides an alternative method to describe the model closed to Λ CDM[54]. In the flat Λ CDM models, the jerk parameter is constant such that $j = 1$ [55] (for a detailed explanation of jerk parameter, see Tiwari et al.[56], [57] and references therein). In this study we assume that

$$\frac{1}{H^3} \frac{\ddot{a}}{a} + \beta q = 0 \tag{37}$$

Without loss of generality we take $\beta = 1$ and then solving equation (37) we get scale factor a as

$$a = k_1 \sinh(k_2 t + k_3) \tag{38}$$

Where c is a constant of integration. For the above mean scale factor, the solutions of metric potentials given in equations (34)-(36) are

$$A = m_1 k_1 \sinh(k_2 t + k_3) \times \exp \left[\frac{(2k_1 + k_2)}{3} F(t) \right], \quad (39)$$

$$B = m_2 k_1 \sinh(k_2 t + k_3) \times \exp \left[\frac{(k_2 - k_1)}{3} F(t) \right], \quad (40)$$

$$C = m_3 k_1 \sinh(k_2 t + k_3) \times \exp \left[\frac{-(k_1 + 2k_2)}{3} F(t) \right], \quad (41)$$

Where

$$F(t) = \int [\sinh(k_2 t + k_3)]^{-3} dt = 1 + \frac{2}{3} \cosh^2(k_2 t + k_3) + \frac{3}{5} \text{Cosh}^4(k_2 t + k_3) + 0[\cosh(k_2 t + k_3)]^6 \quad (42)$$

For the model, the directional Hubble parameters H_x , H_y and H_z are obtained as

$$H_x = K_2 \coth T + \frac{(2l_1 + l_2)}{3k_1^3 \sinh^3 T}, \quad (43)$$

$$H_y = K_2 \coth T + \frac{(l_2 - l_1)}{3k_1^3 \sinh^3 T}, \quad (44)$$

$$H_z = K_2 \coth T - \frac{(l_1 + 2l_2)}{3k_1^3 \sinh^3 T}, \quad (45)$$

Where $T = k_2 t + k_3$

The anisotropy parameter \bar{A} is obtained as

$$\bar{A} = \frac{2(l_1^2 + l_2^2 + l_1 l_2)}{9k_1^6 k_2^6 \sinh^6 T \coth^2 T}, \quad (46)$$

and the Hubble parameter H , spatial volume V , expansion scalar θ , shear scalar σ^2 and deceleration parameter q take the following forms

$$H = K_2 \coth T, \quad (47)$$

$$V = k_1^3 \sinh^3 T, \quad (48)$$

$$\theta = 3K_2 \coth T, \quad (49)$$

$$\sigma^2 = \frac{k^2}{k_1^6 \sinh^6 T}, \quad (50)$$

$$q = \frac{-1}{\coth^2 T}, \quad (51)$$

From equations (16)-(19), (37) and equations (43)-(45), energy density ρ and pressure p

$$\rho = \frac{1}{(16\lambda^2 + 10\lambda + 1)} \left[(3 + 16\lambda)k_2^2 \coth^2 T - 10\lambda - \frac{(1+12\lambda)(l_1^2 + l_2^2 + l_1 l_2)}{3k_1^6 \sinh^6 T} \right], \quad (52)$$

$$p = \frac{-1}{(16\lambda^2 + 10\lambda + 1)} \left[2(1 + 3\lambda) + k_2^2 \coth^2 T + \frac{(1+4\lambda)(l_1^2 + l_2^2 + l_1 l_2)}{3k_1^6 \sinh^6 T} \right], \quad (53)$$

The equation of state parameter (EOS) $\omega = \frac{p}{\rho}$ can be obtained in a straightforward manner from equations (52) and (53) as

$$\omega = \frac{-[6(1+3\lambda)k_1^6 \sinh^6 T + 3k_1^6 k_2^2 \sinh^6 T \coth^2 T + (1+4\lambda)(l_1^2 + l_2^2 + l_1 l_2)]}{3(3+16\lambda)3k_1^6 k_2^2 \sinh^6 T \coth^2 T - 30\lambda k_1^6 \sinh^6 T - (1+12\lambda)(l_1^2 + l_2^2 + l_1 l_2)}, \quad (54)$$

For the present model with a PVDP, we obtain, the density parameter $\Omega = \frac{\rho}{3H^2}$ as

$$\Omega = \frac{-3k_2^2 \coth^2 T}{(16\lambda^2 + 10\lambda + 1)} \left[10\lambda - (3 + 16\lambda)k_2^2 \coth^2 T + \frac{(1+12\lambda)(l_1^2 + l_2^2 + l_1 l_2)}{3k_1^6 \sinh^6 T} \right], \quad (55)$$

5. Statefinder Diagnostic

Sahni et al. [58] have defined a geometrical state finder pair $\{r, s\}$ by means of the third derivative of the scale factor with respect to time t . State finder diagnostic approach is a good test for cosmological models to distinguish the dark energy models. The state finder diagnostic pair also characterizes the Λ CDM model. Λ CDM model is the model in which the cosmological constant Λ undertakes a role of dark energy. It is assumed that Λ CDM model is the basic model in study of evolution the accelerating universe history and it is characterized by the fixed point $\{r, s\} = \{1, 0\}$.

The state finder diagnostic pair is defined by

$$r = 1 + 3 \frac{\dot{H}}{H^2} + \frac{\ddot{H}}{H^3}, \quad (56)$$

and

$$s = \frac{r-1}{3\left(q-\frac{1}{2}\right)}. \quad (57)$$

Now, we apply the state finder diagnostic approach to our model for testing its behavior accordance with Λ CDM model. For our model, the expression of parameters $\{r, s\}$ are obtained as follows

$$r = 1 - \text{sech}^2 T, \quad (58)$$

$$s = \frac{2 \text{sech}^2 T}{3\{1+2 \tanh^2 T\}}, \quad (59)$$

For our model the statefinder pair $\{r, s\}$ approaches to $\{1, 0\}$ at late times and the present value of the pair is $\{r, s\} = \{0.959, 0.011\}$. Thus the model is compatible with Λ CDM model currently.

Conclusions. In this study, we have investigated the properties of a spatially homogeneous and anisotropic Bianchi type-I model within the framework of Modified gravity. Specifically, to fully solve the field equations, we adopt the condition $j=1$. As p decreases and eventually approaches to zero at the later stage of the Universe. This implies that the Universe exhibits anisotropy in its early stage and tends towards isotropy at later times. The deceleration parameter $1 \rightarrow q$, indicates that the model is experiencing cosmic acceleration. At the early stage of the Universe, the EOS parameter $1 < \omega$, suggests a behavior similar to phantom dark energy. However, as the Universe evolves, it approaches the phantom-divide line $1 = \omega$. The statefinder parameters $1 \rightarrow r$, $0 \rightarrow s$, respectively, as cosmic time progresses, indicating that our model corresponds to the Λ CDM model at the later epoch.

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A Comparative Study of Intolerance of Uncertainty among Suicide Risk Group and Non-Suicidal Group of Students

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Abstract

Present study aimed to examine the prevalence of suicide thoughts and behavior among male and female students in related to intolerance of uncertainty. The study conducted in two phases. In the first phase, the Suicide Behaviour Questionnaire –Revised (SBQ-R) was administered on 1000 college students as a screening test to assess suicide thoughts and behavior. Students were belonging various professional and non-professional courses. From that, 130 students who were score above the cut off (≥ 7) has selected as participants with taking care of inclusion and exclusion criteria. Similarly an equal number of participants, 129 students who scored minimum on suicide ideations were selected as non-suicidal participants. There were two tools used in this research one each for measuring rumination reflection, and suicide behavior. The participants were taken from different universities of Bihar. In terms of gender, out of this two hundred fifty nine, hundred twenty six (126) were females and remaining one hundred thirty three (133) were males. The age of the participants ranged from 20-30 years. In the present study the purposive sampling technique was used. On intolerance of uncertainty, the individuals with suicidal risk reported significantly higher score that then non-suicidal group. Here gender difference was observed across the group. In both, suicide risk group and non-suicidal group males have scored higher intolerance of uncertainty than the females. Dimension wise results also revealed the similar finding across groups and gender.

Keywords: Intolerance of Uncertainty, Suicide Risk Group and Non-suicidal Group of Students etc.

Introduction:

Psychological Risk factors and correlates of suicide

The potential pathways which leads to suicide are least known (Nock et al., 2009). However, Cha et al (2018) has explained the potential etiology of suicide and organized these factors into affective, cognitive, and social processes, as form of risk factors, its change leads and results in suicidal thoughts and behaviors at times (Cha, Franz, Guzmán, Glenn, Kleiman, & Nock, 2018).

Affective processes are emotional valanced psychological processes that relate to negative effects such as helplessness, poor self-esteem, worthlessness, neuroticism, and other negative self-referential thinking (Cha et al (2018). The presence of these factors for long time will further weakens the psychological capital of the individual and results in negative mood. Many previous researches have well established the relation of depression and hightend risk of suicide (Reddy, 2010).

Cognitive processes: The affect and cognition are interrelated where negative affect can invoke dysfunctional cognition and vise versa. Impulsivity is the most commonly measured trait with suicidality; nevertheless, the evidence reveals that it only connects with the suicide plan, not suicidal thoughts and attempt, when other variables are controlled for (Cha et al., 2018). In recent years rumination also being studied with suicide behaviour (Tang, Xiong, Shi, Chen, Liu, Zhang, & Yao, 2021).

Social processes: Loneliness is a counted as a proximal predictor of suicide, but it is frequently mediated by psychopathologies (Cha et al., 2018). In terms of interpersonal theory (Joiner 2005), thwarted belongingness has been found to interact with acquired capability to predict suicide attempt among females, besides that sense of any kind of burdensomeness is also found to be associated with suicide among males. Suicide attempts in adolescents are predicted by females' feelings of betrayal and males' feelings of burdensomeness when combined with acquired competence (Czyz et al., 2015).

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Intolerance of Uncertainty:

Uncertainty is an unavoidable part of life in this stochastic and dynamic environment, and it is thus a constant component of the challenges that humans encounter every day (Bennett., Sutcliffe., Tan., Smillie., & Bode 2021). The ambiguity or doubt regarding whether or not a given event will occur is referred as the condition of uncertainty (Keren & Gerritsen, 1999).

Uncertainty happens when a person is presented with ambiguous and conflicting information that triggers unpleasant feelings (Del Valle et al. 2020). It is normal at a level and it is anticipated at all stages of life. Even, a person can feel uncertain about his or her work, personal relationships, and long-term objectives, but same time they can feel good command and control. This, however, can be highly overwhelming for some people, leading to psychological distress.

Intolerance of uncertainty is characterized as a fear of everyday unpredictable situations (Carleton, 2012) and to see any uncertainty as a source of stress and frustration (Yook, Kim, Suh, & Lee 2010). In contrast to situational uncertainty, the construct Intolerance of uncertainty has been broadly defined as cognitive, emotional, and behavioral responses to uncertainty that impacts in information processing and results in erroneous appraisals of increased threat and maladaptive coping (Freeston, rhéaume, letarte, dugas, & ladouceur, 1994).

Intolerance of uncertainty was defined by Buhr & Dugas (2009) as a dispositional trait that stems from a set of negative beliefs about uncertainty and its implications. They further added that it encompasses the predisposition to negatively react (in terms of emotional, cognitive, and behavioral level) to uncertain situations and events.

Individuals with a high level of uncertainty intolerance find unknown circumstances dangerous, distressing, and disagreeable, regardless of the likelihood of a bad occurrence. This overestimation, as well as the perceived incapacity to manage, leads to maladaptive cognitive, emotional, and behavioural reactions (Dugas et al. 1998, 2001).

Recently, Carleton (2016) defined intolerance of uncertainty as a person's dispositional inability to tolerate the aversive response triggered by the perceived absence of prominent, important, or satisfactory information, and continued by the related perception of uncertainty.

McEvoy and Mahoney (2011) found evidence for a two-factor structure in clinical samples and operationalized the components in a same way, prospective anxiety (fear of uncertainty based on future occurrences) and inhibitive anxiety (i.e., uncertainty inhibiting action). Prospective anxiety is a cognitive characteristic of anxiety that relates to the need for predictability, for understanding what will happen in the future, and for engagement in information seeking to lessen uncertainty. Inhibitory anxiety, on the other hand, indicates the behavioural dimension; avoidance and paralysis when confronted with uncertainty (Carleton, Norton, & Asmundson, 2007).

There are studies suggesting that depression, social anxiety disorder, and panic disorder, generalised anxiety disorder and obsessive-compulsive disorder, all seem to be linked to inhibitory intolerance of uncertainty (Boelen & Lenferink, 2018).

Individual with high intolerance of uncertainty may develop anxiety disorder. Zerach and Levi-Belz (2019) reported suicide ideation and behavior among veterans with considerably greater levels of intolerance of uncertainty.

Birrell et al. (2011) reported that approach-oriented reactions are associated to prospective intolerance of uncertainty (e.g., goaldirected behaviour to reduce ambiguity). Individuals with a high level of prospective intolerance of uncertainty are motivated to participate in ambiguity-reduction measures as a desire for predictability. As a result, there is less ambiguity about the future, and individuals can prepare ahead (Birrell, Meares, Wilkinson, & Freeston, 2011).

On the other hand, inhibitory intolerance of uncertainty has been linked to avoidance-oriented behaviours such as stepping away from the outcome by removing oneself from the uncertain situation. (Stapinski, Abbott, & Rapee, 2010). Individuals with high inhibitory intolerance of uncertainty typically feel behaviorally inadequate when confronted with ambiguity, which can lead to physical paralysis. This paralysis is linked to dysfunctional cognitive coping mechanisms like

thinking of possible threats or delaying decision making (Dugas & Robichaud, 2007). Additionally, social anxiety has been linked to both prospective and inhibitory intolerance of uncertainty (Stevens, Rogers, Campbell, Bjorgvinsson, & Kertz, 2018). This interpersonal difficulties may lead to thwarted belongingness and perceived burdensomeness in later and that may result in suicide behavior. (Martin, Smith, McGrew, & Capron, 2021).

Rational of the study:

Suicide is one of the well-studied topics in psychology, although it is still poorly understood. It is obvious that the motives for suicide are complex; no one construct can adequately describe an individual's suicide thoughts and behaviour. Suicide is not restricted to those suffering from physical or mental illnesses. It is prevalent throughout the entire population.

The cognitive dynamics behind the suicidal thoughts and behavior is relatively less explored. This study researcher attempted to understand the possible interplays of the variable intolerance to uncertainty, in individual's suicide thoughts and behavior.

Hence, these factors are evident across the pathological and non- pathological population; this research would be beneficial to both. The trans- diagnostic utility of these findings would assist professionals to plan and execute therapies and other care oriented policies and programs to reduce suicidal risk among people.

Hypothesis: There would be a difference in the extent of intolerance of uncertainty among suicide risk group and non-suicidal group of students.

Participants:

The study conducted in two phases. In the first phase, the Suicide Behaviour Questionnaire – Revised (SBQ-R) was administered on 1000 college students as a screening test to assess suicide thoughts and behavior. Students were belonging various professional and non-professional courses. From that, 130 students who were score above the cut off (≥ 7) has selected as participants with taking care of inclusion and exclusion criteria. Similarly an equal number of participants, 129 students who scored minimum on suicide ideations were selected as non-suicidal participants.

Measures:

There were four tools used in this research one each for measuring rumination reflection, meaning in life, intolerance of uncertainty and suicide behavior. The following tools were administered on the participants.

Suicidal Behaviors Questionnaire-Revised (SBQ-R) was developed by Osman and colleagues (2001) as a self-report measure to assess suicide thoughts and behaviour in an individual. SBQ-R was developed on the basis of Linehan and Nielsen's initial work (1981). The original instrument was lengthier and had 34 items; later, two variations were adopted, one with four items and the other with fourteen. The scale consists of questions about suicide thoughts and behaviour in the past and future. The SBQ-R is a four-item questionnaire that includes Likert-type questions on the frequency with which suicidal ideation is presented, how suicidal thoughts are communicated to others, and attitudes and expectations about the current suicide attempt. The items include "Have you ever thought about or attempted to kill yourself?" with 1 to 4 score points, "How often have you thought about killing yourself in the past year?" with 1-5 score points, "Have you ever told anyone you were going to commit suicide, or that you might do it?" with 1-3 score points, "How likely is it that you will try to kill yourself someday?" with 0-6 score points. The overall score ranges from 3 to 18, where the higher score on the scale points to the greater the risk of suicide (Osman et al., 2001). They discovered that scores of 7 might predict the probability of suicide in the general adult population, with a sensitivity of 0.93 and specificity of 0.95. (Osman et al., 2001).

Intolerance of Uncertainty Scale-12 (Carleton et al., 2007) abbreviated as IUS 12, is a measure consists 12 items questionnaire, that assesses a person's tendency to find uncertainty unpleasant and disturbing. The Intolerance of Uncertainty Scale-12, items were generated from the original IUS (Freeston et al., 1994; Buhr and Dugas, 2002) and are highly associated with it. This is a 5-point Likert scale, where the respondents are asked to rate how much each statement pertains to

them, with 1 equaling "not at all characteristic of me" and 5 equaling "completely characteristic of me." The scale has reported internal consistency ($= 0.93$), excellent convergent, and discriminant validity (Carleton et al., 2007; Khawaja and Yu, 2010; McEvoy and Mahoney, 2011).

Results:

Table 1: Mean and standard deviation of the scores on Intolerance of uncertainty of the two groups of students (Suicidal risk Group & Non - Suicidal Group) and t-value.

	Groups	N	Mean	SD	T	Sig. (2-tailed)
Intolerance of uncertainty	Suicide risk group	130	39.75	9.316	6.519	.000
	Non-suicidal group	129	33.09	9.285		

Table 1 shows the mean and SD of the suicidal and non-suicidal participants on intolerance of uncertainty. Here the suicidal group reported a high mean on intolerance of uncertainty ($M=39.75$, $SD= 9.316$) than the mean 33.09 ($SD= 9.285$) of the non-suicidal group. The difference was found to be statistically significant with $t= 6.519$, $p< 0.001$.

Table 2: Mean and standard deviation of the scores on intolerance of uncertainty of the two groups of students (male and female) and t-value.

Variable	Groups	Gender	N	Mean	SD	T	Sig. (2-tailed)
Intolerance of uncertainty	Suicide risk group	Male	49	43.41	7.765	3.649	.000
		Female	81	37.53	9.517		
	Non-Suicidal group	Male	84	35.19	8.888	2.637	.009
		Female	45	31.88	9.322		

Table 2 shows the gender wise mean and SD of the suicidal and non-suicidal group on intolerance of uncertainty. On both groups, males reported higher score than females. For the suicidal group, males got mean 43.41 ($SD 7.765$) and where females had mean 37.53 ($SD 9.517$). This difference was found significant with $t= 3.649$, $p<0.01$. For the non-suicidal group, the males participants obtained a score ($M= 35.19$, $SD8.888$) and the female participants obtained a mean ($M= 31.88$, $SD= 9.322$). Results suggested significant differences in among genders with $t = 2.637$, $p< 0.01$.

Table 3: Mean and standard deviation of the scores on intolerance of uncertainty (dimension wise) of the two groups of students (Suicidal risk group and Non- suicidal group) and t-value.

	Groups	N	Mean	SD	T	Sig. (2-tailed)
Prospective Intolerance of anxiety of uncertainty	Suicide risk group	130	19.80	5.200	6.012	.000
	Non- suicidal group	129	16.40	5.117		
Inhibitory Intolerance of anxiety of uncertainty	Suicide risk group	130	19.95	4.874	6.044	.000
	Non- suicidal group	129	16.69	4.924		

Table 3 shows the mean and SD of the suicidal and non-suicidal group on the dimensions of intolerance of uncertainty. Results revealed significant difference on both dimensions according to the group difference. In other words suicidal and non-suicidal group were differed each other on dimension prospective anxiety of intolerance of uncertainty and the dimension inhibitory anxiety of intolerance of uncertainty. Suicidal group reported an higher score on prospective anxiety and inhibitory anxiety. They scored a mean of 19.80 ($SD 5.200$) and 19.95 ($SD 4.874$) on these dimensions respectively. Whereas the non-suicidal group reported lower mean 16.40 ($SD 5.117$) on

prospective anxiety dimension and a mean of 16.69 (SD 4.924) on inhibitory anxiety. Both these difference were statistically significant at $p < 0.01$ level.

Table 4: Mean and standard deviation of the scores on intolerance of uncertainty (dimension wise) of the two groups of students (male and female) and t-value.

Variable	Groups	Gender	N	Mean	SD	T	Sig. (2-tailed)
Prospective Intolerance of uncertainty	Suicide risk group	Male	49	22.35	4.039	4.987	.000
		Female	81	18.26	5.239		
	Non suicidal group	Male	84	17.31	5.134	2.058	.041
		Female	45	15.88	5.051		
Inhibitory Intolerance of uncertainty	Suicide risk group	Male	49	21.06	4.385	2.054	.042
		Female	81	19.27	5.055		
	Non suicidal group	Male	84	17.88	4.720	2.828	.005
		Female	45	16.00	4.924		

Table 4 shows the gender wise mean and SD of the suicidal and non – suicidal groups on the dimensions of intolerance of uncertainty. The males reported high score on both dimensions than the females. Moreover these gender differences were observed across the groups as well.

On the dimension prospective anxiety of intolerance of uncertainty, on both groups males reported high mean 22.35 (SD 4.039) and 17.31(SD 5.134) for suicidal and non-suicidal groups respectively. Whereas females reported mean 18.26 (SD 5.239) for suicidal group and 15.88 (SD 5.051) for non-suicidal groups accordingly. These difference showed statistical significance with $t = 4.987$, $p < 0.01$ for suicidal group and $t = 2.058$, $p < 0.05$ for non-suicidal group.

Similarly, on the dimension inhibitory anxiety of intolerance of uncertainty, males scored mean 21.06 (SD 4.385) and females scored 19.27 (SD 5.055) for suicidal group, and 17.88 (4.720) and 16.00 (SD 4.924) for non-suicidal group respectively. These difference showed statistical significance with $t = 2.054$, $p < 0.05$ for suicidal group and $t = 2.828$, $p < 0.05$ for non-suicidal group.

Discussion:

Hypothesis: There would be difference in the extent of intolerance of uncertainty among suicide risk group and non-suicidal group of students.

The hypothesis was presuming the difference in the intolerance of uncertainty among students of suicide risk group and non-suicidal group. This hypothesis was also tested by analyzing means and standard deviation on the intolerance of uncertainty scores for the two groups of students separately (suicide risk and non- suicidal group).

The results was presented in the table 1 shows that the students with suicide risk also found high on the intolerance of uncertainty ($M = 39.75$, $SD = 9.316$) as compare to the group with no suicide risk ($M = 33.9$ $SD = 9.285$). This difference was too large and found statistically significant ($t = 6.519$). In other words, it can be said that the intolerance of uncertainty was a great risk for developing suicide thoughts and behavior in youth.

In terms of dimensions, prospective anxiety representing approach responses, measures desire for predictability, preferences for knowing what the future holds, anxiety about future uncertain events, and active engagement in seeking information to increase certainty and the second, inhibitory anxiety representing avoidance responses to uncertainty measures avoidance and paralysis in the face of uncertainty, the suicide risk group scored higher score as compare to the non-suicidal group (Table 3) On the prospective intolerance of uncertainty dimension, suicide risk group scored a higher mean ($M = 19.80$) than the non-suicidal group ($M = 16.40$). The difference was found statistically significant ($t = 6.012$).

The dimension wise analysis of the inhibitory intolerance of uncertainty shows the dimension accounting inhibitory intolerance of uncertainty, suicide risk group had higher score ($M= 19.95$) than the non-suicidal group ($M= 16.69$). Both the groups were differed statistically significant ($t= 6.044$)

Further, the gender wise analysis also suggested difference in intolerance of uncertainty between male and female participants. In both groups, suicide risk group and non-suicidal group, male participants were reported significantly higher on intolerance of uncertainty than that of the females (Table 2). Among suicide risk group, males reported a mean of 43.41, whereas females from the same group scored a lower score 37.53. This difference was also found statistically significant ($t=3.649$).

However, the non-suicidal group was scored a significantly lower mean than the suicide risk group, they were also reported difference across genders. Where the males from non suicidal group scored a mean of 35.19 and females from the same group scored a mean of 31.88. both the group were found to be statistically significant ($t= 2.637$).

The gender differences were prevalent across the separate dimensions of Intolerance of uncertainty. On the dimension prospective intolerance of uncertainty, males from the suicide risk group scored a mean of 22.35, while the females of the same group scored a lower mean of 18.26. In a similar way, males from the non-suicidal group scored higher mean 17.31 than that of the females ($M= 15.88$). Both these differences were found statistically significant. On the dimension accounting for inhibitory intolerance of uncertainty, again the males from suicide risk group scored higher mean ($M= 21.06$) than that of the females ($M=19.27$) from the same group. For the non-suicidal group the males were scored 17.88 and females were scored 16.00 as the mean scores. These differences were also found statistically significant.

A robust body of research bolstered the evidence of intolerance of uncertainty, as a cognitive vulnerability factor for worry, as well as a maintaining factor for psychological disorders (e.g., Ladouceur et al., 2000; Koerner and Dugas, 2008). Individuals high in intolerance of uncertainty find situations that are uncertain threatening, upsetting, and undesirable, regardless of the actual probability of a negative event to occur (Dugas et al., 1998). Negative beliefs about uncertainty usually interfere with the individual's ability to effectively deal with these situations and promote the use of worry as a dysfunctional strategy to cope with or prevent feared outcomes (Dugas et al., 1998; Behar et al., 2009).

The findings of the study pointed at higher rate of prospective anxiety and inhibitory anxiety among the suicide risk group. It is reasonable that, the suicide risk individuals do focus on uncertainty avoidance, and they report more pathological symptoms of emotional and behavior disorders than the non-suicidal individuals.

Intolerance of uncertainty was found to be a trans-diagnostic phenomenon- symptoms present across diagnosis, although different aspects of IU were related to different symptoms of internalizing disorders, the findings of the present study further help in understanding suicidality from one more point of view. Hence the hypothesis, presuming the difference in intolerance of uncertainty among suicide risk group and non-suicidal group of students was found to be confirmed.

Conclusion

Present study aimed to examine the prevalence of suicide thoughts and behavior among male and female students in related to intolerance of uncertainty. It was found there was no substantial gender difference in suicide risk group and non suicidal group in general. However, dimension wise analysis were revealed differences in suicide thoughts and behavior across gender. This study found that females are having more suicidal ideation than the males. Similarly they communicated threat of suicide than the males. On intolerance of uncertainty, the individuals with suicidal risk reported significantly higher score that then non-suicidal group. Here gender difference was observed across the group. In both, suicide risk group and non-suicidal group males have scored higher intolerance of uncertainty than the females. Dimension wise results also revealed the similar finding across groups and gender.

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A Study on Growth of Secondary Sector in Bihar

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The term sector includes industry which stands for all of man's economic activities which are productive. In the process raw materials are modified or transformed to raise their value/utility. For example by changing the shape and size of woods, we make furniture making cloths from cotton and making machines from iron etc. These processes are also industries over the earth's surface. There are numerous industries in one locality, few in other and entirely absent in still another. Moreover, one type of industry may predominate in one place, whereas another type predominates elsewhere. These variations are due to the presence of favorable or unfavorable factors for the development of industries. The industrial development in a particular area largely depend upon the locally available resources or raw materials, sources of power, means of transportation, skilled labour, technology, and capital. There are limited areas where all the conditions remain favorable for industrial development.

At present, Bihar's industrial sector contributes only about 16 percent to its gross state domestic product as against 26 percent for the national average. As a consequence of bifurcation, the share of net value added of the industrial units in the residual Bihar in 2002-03 remained only 17.9 percent, with Jharkhand getting the remaining share of 82.1 percent. This was obviously on account of nearly whole mineral producing region becoming part of Jharkhand state, leaving only a limiting number of large, medium and small scale enterprises in present Bihar.

Thought broad based recovery from recession in industrial sector at national level had started in 2009-10, Bihar presented a downward trend in respect of mining/quarrying and manufacturing sector, both registered and unregistered. The contribution of manufacturing sector as a whole is less than 5 per cent to the gross state domestic product, and the registered manufacturing sector with much less share recorded a sharp drop over the period. The share of mining and quarrying also recorded a decline in 2009-10.

Modern Bihar has the smallest enterprises sector in the country and has the least share of it (1.22 per cent) . It's industrial sector contributes only about 16 per cent to its GSDP against 26 per cent for the national average. As a consequence of bifurcation the state has lost nearly whole mineral producing region to Jharkhand leaving only a limited number of large, medium and small scale enterprises in present Bihar. The state has, therefore, the potentials for the development of agro-based and forest-based industries, since it has no significant minerals for the development of metal based and non-metal based industries . Forest resource is available in limited areas in North-Western and north-eastern bordering areas. The forest areas of North-Western portion consists of varieties of trees of industrial value. On these resources there are saw mills, furniture and other related industries. Urban centers and important rural services centers located in the bordering areas also have saw mill where wooden logs are made available from locally as well Teri region of Nepal. Important centres where exist several saw mills and related small scale industries include Jainagar, Lukaha, Raxaul, Valmikinagar, Jogbani, etc.

Bamboo thickets, tall grasses, bag gases of sugar cane, paddy straw etc. are adequately available in northern portion of Bihar and these resources have enabled the development of paper industry. Thakur mill of Samastipur is not functioning Another paper mill is located at Dalminagar which its based on forest resources of Kaimur hills. In addition to these large paper mills there are smaller paper mills developed at Patna, Barauni and other urban are centers. The state has potentials

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for the development of agro-based industries on account of its fertile alluvial plain which provides food crops, industrial crops, aqua crops, oil seeds, vegetables. They all provide favourable conditions for the development of sugar industry, jute, textile, tobacco, rice mills, wheat flour mills, fruit canning and dairy industries.

Agro-Based Industries:

The state has enormous potential for the development of agro-based industries depending upon various kinds of agricultural production. For the promotion of food processing, the government has adopted Food Processing Policy since Dec., 2008 and formed a Directorate of Food Processing Industries. With agriculture as the mainstay, there is ample scope for agro-based industries in the state, and with a large population of about 9 crore. Bihar is fast becoming a large and growing market for food products. According to an estimate, the present food market in Bihar is worth around Rs. 40,000 crores of which processed food market is only around Rs. 18,000 crore.

Bihar has enough scope for agro-based industries. Major agricultural products of Bihar are cereals, pulses, oil seeds, fruits, vegetables and cash crops. The important cash crops include sugarcane, potato, tobacco, jute and spices. Bihar is the third largest produce of vegetables in India after West Bengal and Uttar Pradesh. The state is also 6th largest producer of fruits. Agro-based industries also enjoy the place of prominence in the State's Industrial scenario. The ASI report (2007-08) shows that the agro-based industries accounted for 88 per cent of the total value added of Rs. 1159 crore of all industrial units.

Sugar Industry:

The state of Bihar has good prospect of sugar industry. It is raw material based industry. Sugarcane has been an important crop of Bihar, its area of coverage being 2.70 lakh hectares in 2009-10. In terms of area and production, the districts of Purbi and Paschchimi Champaran were on the top in 2009-10. In the first half of the 20th century, there were all 33 sugar mills in the state. These sugar mills were located at Marhaura, Chanpati, Sugauli, Sakri, Bihta, Goraul, Gorant, Motipur and Warsaliganj. Now only 28 mills remained, of which 18 mills are under private sector, bagaha and Motihari are almost sick and closed.

Textile Industry:

This part of the country has good reputation in the production of clothes specially handloom and silk products. The people of a particular community have specialized in preparing thread and cloth. The industry involved the people of both rural and urban areas. Lungi, Bedsheet and Chandar produced at Bhagalpur, Kalin produced at Obra and Daudnagar of Aurangabad district are in good demand in the country.

Cotton Textile:

Bihar lacks in raw material for cotton textile. In spite of this it has advantage of cheap labour and available markets. Mills are developed at Dumraon, Gaya, Mokama, Phulwarisharif and Bhagalpur, Madhubani and Munger. These factories import threads from Kanpur and Ahmedabad. Handlooms and silk clothes are nowadays important in Bihar. Around 10850 handlooms are operating under 1090 weavers cooperative societies in Bihar.

Silk Textile:

Silk cloth manufacturing is an important industry in Bihar. Bhagalpur is a famous silk cloth manufacturing centers. For the development of sericulture, 11 mulberry, 6 tusker and one castor centres along with four regional offices at Bhagalpur, Muzaffarpur, Gaya and Darbhanga have been established in Bihar. Each Mulberry centre includes a farm with pucca enclosure, office building, houses for cocoons. The tusser centres also need office building, cocoon houses, enclosures etc. In Bhagalpur the Govt. has proposed to establish Bihar silk and Textile Institute. In 2009-10, under the centrally sponsored scheme, a sum of Rs. 167.12 lakh was allotted to the state as central share for the execution of Mulberry Development Project (Purnia), Tusser Development Project (Nawada, Banka) and Castor Solk Development Project (Begusarai).

Other Agro-Based Industries:

It is important to note that as a result of bifurcation, the state of Bihar, became almost devoid of minerals mining/quarrying and manufacturing industries. But the state has fertile plain land, water resources and man power. With agriculture as the mainstay there is ample scope for agro-based industries in the state and, with a population of around ten crores. Bihar is fast becoming a large and growing market for food products. As such this state has enough scope for agro-based industries.

Processing Industries:

The state of Bihar has good potential of developing fruit and vegetable processing units. Most of these units are engaged in the manufacture of fruits, juices, fruit pulps, squashes, pickles, tomato sources/puree/paste/jam/jelly, fruit beverages, etc. Along with units in organized sector, there are units working in unorganized sector too. The pre-processing facilities like precooking, cooling, grading, sorting, pack houses, etc. are virtually absent in the state. Virtually entire fruits and vegetable produce is brought straight to the markets and only some are sent to the processing units. Through processing and post-harvest management, the present losses of fruits and vegetables to the extent of around 33 percent can be minimized and income may be enhanced.

Cement Industry:

The south western portion of the state has potential for the development of cement industry. There is good resource of limestone of Vindhyan Period in the Kaimur hilly areas. This province provides only 5% limestone in the country. This raw material is utilized in Japla and Banjari cement industry. Dalminagar cement industry of this region is sick at present. Its daily production capacity is 1200 to 1500 tones. Efforts are being made to make use of the raw material by establishing mini-cement plant in the districts of Rohtas and Kaimur. Recently C.M. of Bihar, Sri Nitish Kumar has inaugurated a cement factory with brand name of ECO-CEMENT at Bhabhua.

Rail Coach Factory:

The state of Bihar has Rail coach factory namely Bharat Wagon and Engineering Co. Ltd. at Mokama. This industrial unit produces railway wagon. There is a workshop of a railway at Jamalpur. Railway coach factory is being established at Harnaut. Railway coach factory at Madhepura and railway wheel factory at Chapra are also proposed to be set up.

Chemical Industries:

This industry includes acid, spirit, fertilizer etc. it also includes creations, varnish oil, soap, medicine etc. There is fertilizer industry at Barauni. It is known as Hindustan Fertilizers Industry. This industry uses Naphtha and Gypsum and produces ammonia sulphate, Digi ammonia, Super phosphate etc. Production capacity of this industry is about 4 lakh tone. Petro chemical industry of Barauni provide Naphtha to Fertilizer industry.

Glass Industries:

This state has remained Important from the point of view of producing different items made of glass like bangles, looking glass, bottle etc. This industry requires sand, silica, limestone, sodium sulphate, potassium carbonate, barium oxide etc. The hilly areas of Jharkhand provide these items for this industry. Some glass items are made at Patna, Hajipur, Darbhanga, Bhagalpur etc.

Jute Industry"

This industry is based on jute which is a fibrous crop grown in humid region. It may be remarked that India was holding the leading position in the world before independence when areas of Bangladesh, West Bengal, North Eastern Bihar were growing jute for jute industries developed in Hoogly region. After independence, most jute growing areas were included in East Pakistan now Bangladesh. At the same time this industry faced problems of less demand due to the development of synthetic fiber. But during recent years jute fibers are used in the production of cloth and other items too. As such the importance of jute has again increased. At present this state has three jute industry located at Katihar, Purnia and Darbhanga.

To promote jute industry, there has been an attempt to establishment of processing and design, centre, establishment of a nodal centre for design and Jute park is being established at Marauya in Purnia district on private-public partnership basis. This park will also help in quality production of jute.

Cigarette and Biri Industries:

From the point of view of cigarette and Biri industries this state has raw material as well as big market also . This state produces adequate tobacco for these industries and there are enough skilled labourers. Important tobacco growing districts are Begusarai, Samastipur, Vaishali etc. There is only one cigarette industry at Munger but there are a good number of Biri Industries developed at Patna, Gaya, Munger, Jhajha, Lakhisarai, Biharsharif, Ara, Buxar, Dalsingsarai etc. There centers of Biri industry easily get Kendu leaf from the state of Jharkhand.

Leather and Allied Industries:

Leather industries play an important role in providing employment to large number of artisans. The major factors responsible for the growth of leather industries are availability of raw materials (hides and skins), cheap labour, technology and government support. Bihar has a rich bovine population accounting for nearly 8 per cent of the country's total. Further , the goat population accounts for about 12 per cent of the country and ranks third in the country only next to West Bengal and Rajasthan.

Sickness of Industries:

Sickness of Industries is the biggest problem in industrial sector of Bihar. A small scale industrial unit is considered sick when (i) there is erosion in the net worth due to accumulated loss to the extent of 50 per cent of its net worth during the previous accounting year, and (ii) the unit has been in commercial production for at least two years. There are three yardsticks used to measure sickness e.g., (a) delay in repayment of loan over one year,(b) decline in net worth by 50 per cent and (c) decline in output in last three years. Lack of demand, shortage of working capital and marketing problems are the main reasons for sickness in medium and small scale industries.

In Bihar, because of several infrastructural and other limitation a large number of the existing units are sick. A survey of the Central Govt. found that there were 259 medium and large industrial unit in Bihar in 2006-07 of which 18 units were pronounced by BIFR as sick and it was decided to close 17 of these units. It may be due to lack of market opportunity or absence of infrastructural support to transport the goods to right markets. It could also be due to high costs of production arising from irregular electricity supply and unplanned production schedule to meet growing market demand. It is found that roughly 40 per cent of the closed units are in rural areas and 60 per cent in urban areas, Patna, Gaya, Aurangabad, Sitamarhi, Begusarai, and Jehanabad districts have comparatively higher number of units closed. Some of the major causes responsible for large sick units have been identified as (i) lack of working capital, (ii) non-availability of raw materials, (iii) bad roads, (iv) inadequate communication facility, (v) delay in granting loans by banks and financial institutions. Industrial sickness leads to unemployment, blockage of capital, loss of state revenue and non-utilization of assets. it is therefore, necessary to take proper steps to revive the existing sick industries.

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Corporate Social Responsibility in Select Hospitals of SAS Nagar (Mohali), Punjab: A Quantitative Study

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Abstract

This study investigates the extent and effectiveness of Corporate Social Responsibility (CSR) practices in select hospitals of SAS Nagar (Mohali), Punjab. Using a structured questionnaire distributed among doctors, nursing staff, and general hospital personnel, the research explores awareness, implementation, and impact of CSR activities. A sample of 185 respondents participated in the study. Statistical analyses including ANOVA, Pearson correlation, and multiple regression were conducted to assess differences in perceptions, inter-variable relationships, and predictors of CSR effectiveness. Results reveal significant differences in awareness and perception across professional roles and experience levels. CSR's impact on hospital operations emerged as the strongest predictor of overall CSR effectiveness. The study provides valuable insights for hospital administrators, policy makers, and healthcare strategists in aligning CSR initiatives with institutional and community goals.

Keywords: Corporate Social Responsibility, Healthcare, Hospital Operations, Punjab, CSR Effectiveness, Community Impact, Regression Analysis

Introduction

Corporate Social Responsibility (CSR) has become an essential component of strategic management across industries, including healthcare. In India, the mandatory CSR clause under Section 135 of the Companies Act, 2013, marked a significant shift, compelling eligible companies to allocate a portion of their profits towards socially responsible activities. This legislation has had a substantial impact on the healthcare sector, where CSR initiatives are not only seen as regulatory compliance but also as vital instruments for improving patient care, community health, and environmental sustainability (Kansal & Joshi, 2014; Bansal & Kaur, 2017).

In the context of hospitals, CSR encompasses a wide spectrum of initiatives such as free medical camps, blood donation drives, health education seminars, eco-friendly practices, and employee welfare programs. These actions are increasingly being recognized as tools for building institutional trust, enhancing service quality, and fostering long-term relationships with stakeholders (Sharma & Kiran, 2012; Kumar et al., 2016).

India's healthcare infrastructure particularly in tier-II cities like Mohali is undergoing transformation due to technological advances, increased competition, and changing patient expectations. Mohali, or SAS Nagar, situated in Punjab, serves as a burgeoning healthcare hub with a growing presence of multi-specialty private hospitals and government-run medical facilities. Given the region's socio-economic diversity, hospitals face a dual challenge: delivering high-quality medical services while engaging meaningfully with the community through CSR.

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Despite a national emphasis on CSR, research specific to the hospital sector in regions like Mohali remains limited. While studies such as Ghosh (2014) highlighted CSR's role in improving internal employee morale, and Agrawal & Sahasranamam (2016) examined hospital efficiencies, few have explored how CSR is perceived and operationalized across different hospital roles and levels of experience within Punjab's regional context.

This study aims to fill this gap by examining effectiveness of CSR in selected hospitals in SAS Nagar (Mohali), Punjab. It investigates how CSR is understood, implemented, and evaluated by healthcare professionals and staff, and which factors significantly influence CSR effectiveness in hospital settings.

Literature Review

Corporate Social Responsibility (CSR) has evolved from a voluntary philanthropic gesture to a structured component of organizational strategy. In healthcare, CSR goes beyond mere compliance with regulations and enters the realm of ethical obligation and public trust (Carroll & Shabana, 2010). It encompasses a wide range of initiatives including community outreach, environmental responsibility, ethical treatment of patients and staff, and transparent governance. This section synthesizes existing literature to establish a theoretical foundation for the present study and to identify gaps related to CSR practices in hospital settings, particularly in tier-II Indian cities like Mohali.

In India, the CSR landscape changed dramatically after the enforcement of the Companies Act, 2013, which mandated qualifying companies to spend 2% of their average net profits on CSR. Healthcare organizations particularly corporate hospitals have responded with a variety of initiatives including rural health outreach, subsidized surgeries, blood donation camps, and health awareness campaigns (Sarkar & Searcy, 2016).

One of the primary objectives of CSR in hospitals is to extend healthcare services to underserved populations. According to Sharma and Talwar (2018), CSR activities such as free health camps, mobile medical units, and partnerships with NGOs have been instrumental in filling healthcare gaps in rural and peri-urban areas.

While there is a growing body of literature on CSR in healthcare, significant gaps remain, particularly concerning smaller cities and non-metropolitan regions in India. Most existing research has focused on large corporate hospitals in metropolitan cities like Delhi, Mumbai, or Bangalore (Mitra, 2015). Very little empirical evidence is available for tier-II cities like SAS Nagar (Mohali), despite their increasing importance as regional healthcare centers.

The present study aims to bridge these gaps by focusing on CSR awareness, practices, and effectiveness in selected hospitals of SAS Nagar (Mohali), Punjab. It also seeks to explore how CSR impacts hospital operations and community welfare from the perspective of varied healthcare professionals.

Objectives of the Study

- To assess the awareness and practices of CSR among hospital staff in Mohali.
- To evaluate the perceived impact of CSR on hospital operations and community welfare.
- To identify significant differences in CSR perception based on professional role and experience.
- To explore predictors of CSR effectiveness in the hospital setting.

Research Methodology

This study employed a **quantitative, descriptive research design** to systematically assess the awareness, implementation, and impact of Corporate Social Responsibility (CSR) practices in selected hospitals located in SAS Nagar (Mohali), Punjab. The research aimed to capture the perceptions of different categories of healthcare professionals including doctors, nursing staff, and general hospital support personnel. Given the nature of the research objectives, a structured questionnaire was deemed the most appropriate instrument for collecting primary data, ensuring uniformity and comparability across responses. The study utilized **purposive sampling** to identify

hospitals that had formally adopted CSR policies or demonstrated visible CSR initiatives. This non-probability sampling method was used to seek institutional engagement in CSR required to address the research questions. The final sample consisted of 185 respondents, categorized as follows: 64 doctors, 68 nursing staff, and 53 hospital staff. This categorization allowed for comparative analyses of perceptions across professional roles within the hospital ecosystem.

Data collection was carried out using a structured questionnaire designed to cover seven key domains related to CSR. These domains included: (1) Awareness and Practices on CSR, (2) Hospital CSR Activities, (3) CSR Impact on Community, (4) CSR Impact on Hospital Operations, (5) CSR Engagement with External Business, (6) General Satisfaction, and (7) CSR Effectiveness. All questionnaire items were formatted using a **5-point Likert scale**, enabling the quantification of subjective perceptions and facilitating robust statistical analysis.

To analyze the collected data, several statistical tools were employed. Analysis of Variance (ANOVA) was used to identify statistically significant differences in CSR perceptions among the three professional groups. Pearson correlation analysis was conducted to examine the strength and direction of relationships between various CSR dimensions, such as the impact of CSR on hospital operations and community welfare. Finally, multiple regression analysis was used to identify key predictors of CSR effectiveness, allowing the study to pinpoint which variables most strongly influenced the success and perceived value of CSR initiatives in the hospital context.

Results and Analysis

The study analysed the data of 185 respondents who are working the select hospitals in Mohali. There were 34% respondents working as Doctors, 37% Nursing staff and 29% hospital staff working in various departments. The respondents are working in their respective hospitals with 38% staff having more than 10 year's experience and there were only 28% staff having less than 3 year's experience as demographic distributions are shown pie diagrams.

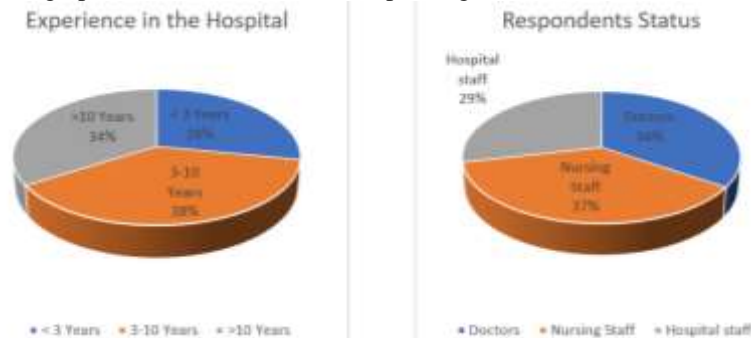


Table 1 Descriptive Statistics of Variables

Variables/Statements	N	Mean	Std. Deviation
Awareness and Practices on CSR	185	3.26	0.948
Hospital CSR Activities	185	2.95	0.615
Hospital CSR Impact on community	185	3.21	0.923
CSR Impact on Hospital Operations	185	3.19	0.874
CSR Effectiveness	185	3.25	0.867
CSR Engagement with External Business	185	3.17	0.825
General Satisfaction on CSR	185	4.98	1.436

A descriptive analysis was conducted on responses from 185 participants to examine awareness, implementation, and perceived impact of CSR strategies in hospitals in Mohali. The data

in Table 1 present the mean and standard deviation for various dimensions of CSR activities. The analysis revealed moderate perceptions across all key CSR dimensions, with means ranging from 2.95 to 3.26 on a 5-point scale. Participants reported moderate awareness and practices regarding CSR (M = 3.26, SD = 0.95) and perceived it as moderately effective (M = 3.25, SD = 0.87). Perceived impacts of CSR on the community (M = 3.21, SD = 0.92) and hospital operations (M = 3.19, SD = 0.87) were also mid-range, indicating balanced but not strong influence. CSR engagement with external businesses scored similarly (M = 3.17, SD = 0.83). The lowest mean score was found in hospital CSR activities (M = 2.95, SD = 0.62), suggesting limited visibility or implementation. Conversely, general satisfaction with CSR was relatively high (M = 4.98, SD = 1.44), though variability in responses indicates differing personal or departmental experiences. The results are also depicted in the box blot.

The findings indicate that CSR initiatives are moderately effective and recognized within hospitals in the Tricity region. Employee-focused programs and community donations are most acknowledged and positively rated, while environmental sustainability efforts lag behind in both awareness and execution.

Stakeholders perceive CSR strategies as contributing more to external reputation and community trust than to internal operations like financial efficiency. Partnerships with businesses are welcomed but need better structuring and evaluation to yield tangible health outcomes.

Hospitals should enhance visibility and implementation of environmental sustainability efforts. Transparent reporting and communication of CSR impact can boost internal and external trust. Stronger evaluation metrics for CSR return on investment, particularly for business collaborations, could improve strategy design.

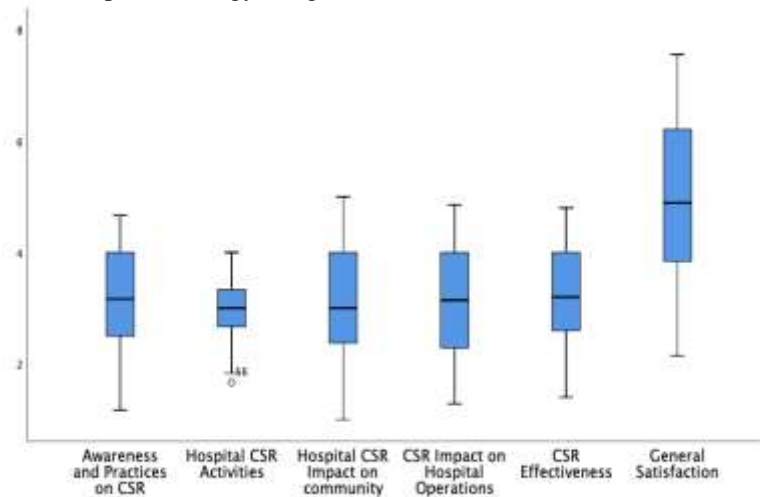


Table 2 Anova Test for significant difference in study among doctors, Nursing staff and Hospital staff

Variables	Group	N	Mean	SD	F Value	P Value
Awareness and Practices on CSR	Doctors	64	3.55	0.874	10.682	0.000
	Nursing Staff	68	3.35	0.888		
	Hospital staff	53	2.80	0.950		
	Total	185	3.26	0.948		

Hospital CSR Activities	Doctors	64	3.10	0.537	6.476	0.002
	Nursing Staff	68	3.00	0.562		
	Hospital staff	53	2.71	0.703		
	Total	185	2.95	0.615		
Hospital CSR Impact on community	Doctors	64	3.42	0.900	6.883	0.001
	Nursing Staff	68	3.31	0.849		
	Hospital staff	53	2.83	0.945		
	Total	185	3.21	0.923		
CSR Impact on Hospital Operations	Doctors	64	3.34	0.777	4.123	0.018
	Nursing Staff	68	3.26	0.769		
	Hospital staff	53	2.91	1.045		
	Total	185	3.19	0.874		
CSR Engagement with External Business	Doctors	64	3.28	0.873	1.149	0.319
	Nursing Staff	68	3.16	0.754		
	Hospital staff	53	3.05	0.851		
	Total	185	3.17	0.825		
General Satisfaction	Doctors	64	5.03	1.312	0.313	0.732
	Nursing Staff	68	5.02	1.523		
	Hospital staff	53	4.84	1.483		
	Total	185	4.98	1.436		
CSR Effectiveness	Doctors	64	3.44	0.791	4.895	0.008
	Nursing Staff	68	3.31	0.800		
	Hospital staff	53	2.96	0.971		
	Total	185	3.25	0.867		

A one-way analysis of variance (ANOVA) was conducted to examine whether there were statistically significant differences in the perception of CSR-related variables among three occupational groups: doctors, nursing staff, and hospital staff. The dependent variables were various CSR dimensions such as awareness, implementation, impact, and satisfaction. The independent variable was staff role group (doctor, nurse, hospital staff).

A significant difference was found among groups regarding awareness and practices of CSR, $F(2, 182) = 10.682, p < .001$. Post hoc comparisons (not shown here) would likely indicate that doctors ($M = 3.55, SD = 0.874$) reported significantly higher awareness than hospital staff ($M = 2.80, SD = 0.950$), with nursing staff ($M = 3.35, SD = 0.888$) falling in between.

There was a statistically significant difference in perceived hospital CSR activity implementation among the groups, $F(2, 182) = 6.476, p = .002$. Doctors ($M = 3.10, SD = 0.537$) rated implementation more positively than hospital staff ($M = 2.71, SD = 0.703$), indicating differing exposure or perception of involvement in such activities. Significant differences also emerged regarding the perceived impact of CSR on the community, $F(2, 182) = 6.883, p = .001$. Doctors ($M = 3.42, SD = 0.900$) again reported higher perceived impact than hospital staff ($M = 2.83, SD = 0.945$), with nurses ($M = 3.31, SD = 0.849$) moderately positive.

There was a significant difference in the perceived impact of CSR on hospital operations, $F(2, 182) = 4.123, p = .018$. Doctors ($M = 3.34, SD = 0.777$) perceived higher operational benefit compared to hospital staff ($M = 2.91, SD = 1.045$).

The differences among groups were not statistically significant for CSR engagement with external businesses, $F(2, 182) = 1.149, p = .319$, suggesting a shared perception across roles. A statistically significant difference was observed for perceived CSR effectiveness, $F(2, 182) = 4.895, p = .008$. Doctors ($M = 3.44, SD = 0.791$) viewed CSR efforts as more effective than hospital staff ($M = 2.96, SD = 0.971$), suggesting differing experiences or expectations across roles.

The findings indicate that doctors consistently rated CSR dimensions awareness, activity, impact, and effectiveness more positively than hospital staff, with nursing staff generally showing intermediate ratings. These differences suggest a stratified perception of CSR initiatives based on occupational role, possibly due to varied levels of involvement, awareness, or access to CSR-related communication and activities. No significant differences were found in CSR engagement with external businesses or general satisfaction, indicating a broadly uniform perception of hospital-business partnerships and overall hospital performance. Hospitals should increase CSR training and communication efforts, particularly for hospital administrative and support staff, to foster broader engagement. Discrepancies in perceptions suggest a need for inclusive CSR planning to ensure initiatives are equally visible and impactful across all employee groups. Future research should consider qualitative follow-up to understand the reasons behind lower CSR perceptions among non-medical staff.

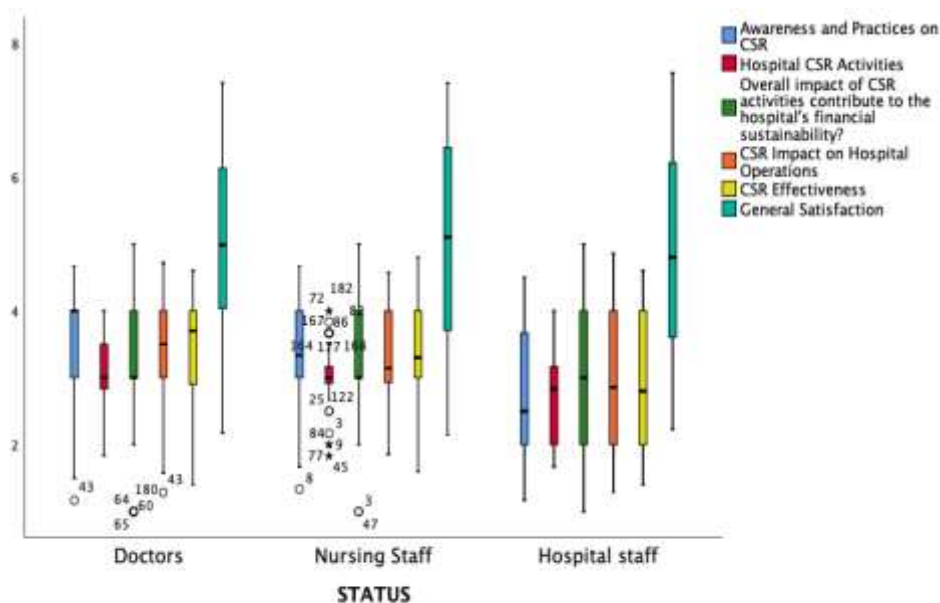


Table 3 Anova Test for significant difference in study variables among respondents with different experience duration in the hospitals

Variables	Experience	N	Mean	SD	F Value	P Value
Awareness and Practices on CSR	< 3 Years	52	2.78	0.947	14.737	0.000
	3-10 Years	70	3.25	0.942		
	>10 Years	63	3.67	0.754		
	Total	185	3.26	0.948		
Hospital CSR Activities	< 3 Years	52	2.63	0.691	13.641	0.000
	3-10 Years	70	2.98	0.530		
	>10 Years	63	3.19	0.520		
	Total	185	2.95	0.615		
Hospital CSR Impact on community	< 3 Years	52	2.74	0.943	16.260	0.000
	3-10 Years	70	3.16	0.859		
	>10 Years	63	3.65	0.770		
	Total	185	3.21	0.923		
CSR Impact on Hospital Operations	< 3 Years	52	2.88	1.006	7.033	0.001
	3-10 Years	70	3.16	0.806		
	>10 Years	63	3.47	0.741		
	Total	185	3.19	0.874		
CSR Engagement with External Business	< 3 Years	52	3.05	0.916	0.869	0.421
	3-10 Years	70	3.18	0.837		
	>10 Years	63	3.25	0.730		
	Total	185	3.17	0.825		
General Satisfaction	< 3 Years	52	4.60	1.463	4.524	0.012
	3-10 Years	70	4.89	1.423		
	>10 Years	63	5.38	1.348		
	Total	185	4.98	1.436		
CSR Effectiveness	< 3 Years	52	2.86	0.971	12.461	0.000
	3-10 Years	70	3.21	0.793		
	>10 Years	63	3.62	0.698		
	Total	185	3.25	0.867		

Table 3, which presents ANOVA results examining whether perceptions of CSR vary by years of experience in the hospital:

The ANOVA analysis revealed significant differences in perceptions of CSR-related variables among hospital staff based on their experience duration. Employees with over 10 years of experience consistently reported higher awareness and more favorable views of CSR activities, community impact, operational benefits, and overall effectiveness compared to those with less than 3 years of experience. Specifically, significant differences were observed in awareness and practices on CSR ($F = 14.737$, $p < .001$), hospital CSR activities ($F = 13.641$, $p < .001$), impact on community ($F = 16.260$, $p < .001$), impact on hospital operations ($F = 7.033$, $p = .001$), and CSR effectiveness ($F =$

12.461, $p < .001$). General satisfaction also varied significantly across experience groups ($F = 4.524$, $p = .012$), with the most experienced group reporting the highest satisfaction levels. However, no significant difference was found in perceptions of CSR engagement with external businesses ($F = 0.869$, $p = .421$), indicating a uniform perspective across experience levels on this aspect. These results suggest that prolonged exposure within the organization enhances understanding and appreciation of CSR initiatives, highlighting the need for targeted induction and communication strategies for newer staff to bridge perceptual gaps. The results indicate Long-term staff may have had greater exposure to CSR efforts over time. They may also be more invested in or informed about the hospital's social initiatives. Newer employees could benefit from targeted orientation or CSR awareness programs to bridge the perception gap. The only areas without significant differences were CSR engagement with external business and general satisfaction, the latter showing only moderate variance.

Hospitals should consider mentorship or induction programs to increase CSR visibility among newer staff. Findings highlight the importance of internal communication strategies to ensure consistent CSR awareness across all experience levels. Further analysis with post hoc tests would clarify which experience groups differ significantly in their perceptions, especially for targeting interventions.

Table 4 Pearson Correlation Analysis for CSR Effectiveness with different study variables in the hospitals

Variables	CSR Effectiveness	Awareness and Practices on CSR	Hospital CSR Activities	Hospital CSR Impact on community	CSR Impact on Hospital Operations	CSR Engagement with External Business
Awareness and Practices on CSR	.890**					
Hospital CSR Activities	.755**	.764**				
Hospital CSR Impact on community	.890**	.872**	.806**			
CSR Impact on Hospital Operations	.916**	.802**	.664**	.784**		
CSR Engagement with External Business	.214**	.285**	.407**	.240**	.203**	
General Satisfaction	.642**	.584**	.566**	.649**	.614**	.287**

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4, reports Pearson correlation analysis significant positive relationships between CSR Effectiveness and several CSR-related dimensions. CSR Effectiveness was strongly correlated with Awareness and Practices on CSR ($r = .890$, $p < .01$), CSR Impact on Community ($r = .890$, $p < .01$), and CSR Impact on Hospital Operations ($r = .916$, $p < .01$), suggesting that perceptions of effectiveness are closely linked to both internal and external outcomes. CSR Activities also showed a strong positive correlation ($r = .755$, $p < .01$), while CSR Engagement with External Business had a weaker yet significant correlation ($r = .214$, $p < .01$). General Satisfaction was moderately correlated with CSR Effectiveness ($r = .642$, $p < .01$). These findings support the convergent validity of the CSR Effectiveness construct and indicate that perceived effectiveness is primarily driven by tangible internal benefits and community impact. Administrators should prioritize communication,

internal engagement, and training to strengthen CSR perceptions, while ensuring that external partnerships complement rather than substitute core initiatives.

These results support the convergent validity of the CSR Effectiveness construct, showing strong positive associations with both internal (e.g., operations, awareness) and external (e.g., community impact) CSR factors. The particularly high correlations with hospital operations and community impact reinforce the idea that effectiveness is perceived through tangible outcomes and internal benefits. The relatively weaker correlation with external business engagement suggests that stakeholders may prioritize internal CSR execution over external partnerships when evaluating effectiveness. Moreover, the significant association with general satisfaction implies that effective CSR initiatives may contribute positively to overall institutional sentiment.

Hospital administrators should focus on improving CSR communication and implementation internally, especially in operational and community engagement domains. Training and awareness initiatives are crucial, given their strong link to perceived effectiveness. While business partnerships contribute, they should complement not replace core hospital CSR activities. Future studies may explore causal pathways or mediating effects between these variables to deepen understanding.

Table 5 Regression analysis to explore predictors of CSR effectiveness in the hospitals

Model Summary ^d						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.916 ^a	0.839	0.838	0.349		
2	.957 ^b	0.916	0.915	0.252		
3	.963 ^c	0.927	0.926	0.237	1.923	
a. Predictors: (Constant), CSR Impact on Hospital Operations						
b. Predictors: (Constant), CSR Impact on Hospital Operations, Hospital CSR Impact on community						
c. Predictors: (Constant), CSR Impact on Hospital Operations, Hospital CSR Impact on community, Awareness and Practices on CSR						
d. Dependent Variable: CSR Effectiveness						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	116.107	1	116.107	955.709	.000 ^b
	Residual	22.232	183	0.121		
	Total	138.339	184			
2	Regression	126.739	2	63.370	994.253	.000 ^c
	Residual	11.600	182	0.064		
	Total	138.339	184			
3	Regression	128.210	3	42.737	763.630	.000 ^d
	Residual	10.130	181	0.056		
	Total	138.339	184			

a. Dependent Variable: CSR Effectiveness						
b. Predictors: (Constant), CSR Impact on Hospital Operations						
c. Predictors: (Constant), CSR Impact on Hospital Operations, Hospital CSR Impact on community						
d. Predictors: (Constant), CSR Impact on Hospital Operations, Hospital CSR Impact on community, Awareness and Practices on CSR						
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.357	0.097		3.677	0.000
	CSR Impact on Hospital Operations	0.909	0.029	0.916	30.915	0.000
2	(Constant)	0.118	0.073		1.627	0.105
	CSR Impact on Hospital Operations	0.561	0.034	0.566	16.361	0.000
	Hospital CSR Impact on community	0.420	0.032	0.447	12.916	0.000
3	(Constant)	0.093	0.068		1.363	0.175
	CSR Impact on Hospital Operations	0.492	0.035	0.495	14.076	0.000
	Hospital CSR Impact on community	0.284	0.040	0.302	7.039	0.000
	Awareness and Practices on CSR	0.209	0.041	0.229	5.126	0.000
a. Dependent Variable: CSR Effectiveness						

Model Summary ^d						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.916 ^a	0.839	0.838	0.349		
2	.957 ^b	0.916	0.915	0.252		
3	.963 ^c	0.927	0.926	0.237	1.923	
a. Predictors: (Constant), CSR Impact on Hospital Operations						
b. Predictors: (Constant), CSR Impact on Hospital Operations, Hospital CSR Impact on community						
c. Predictors: (Constant), CSR Impact on Hospital Operations, Hospital CSR Impact on community, Awareness and Practices on CSR						
d. Dependent Variable: CSR Effectiveness						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	116.107	1	116.107	955.709	.000 ^b
	Residual	22.232	183	0.121		

	Total	138.339	184			
2	Regression	126.739	2	63.370	994.253	.000 ^c
	Residual	11.600	182	0.064		
	Total	138.339	184			
3	Regression	128.210	3	42.737	763.630	.000 ^d
	Residual	10.130	181	0.056		
	Total	138.339	184			
a. Dependent Variable: CSR Effectiveness						
b. Predictors: (Constant), CSR Impact on Hospital Operations						
c. Predictors: (Constant), CSR Impact on Hospital Operations, Hospital CSR Impact on community						
d. Predictors: (Constant), CSR Impact on Hospital Operations, Hospital CSR Impact on community, Awareness and Practices on CSR						
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.357	0.097		3.677	0.000
	CSR Impact on Hospital Operations	0.909	0.029	0.916	30.915	0.000
2	(Constant)	0.118	0.073		1.627	0.105
	CSR Impact on Hospital Operations	0.561	0.034	0.566	16.361	0.000
	Hospital CSR Impact on community	0.420	0.032	0.447	12.916	0.000
3	(Constant)	0.093	0.068		1.363	0.175
	CSR Impact on Hospital Operations	0.492	0.035	0.495	14.076	0.000
	Hospital CSR Impact on community	0.284	0.040	0.302	7.039	0.000
	Awareness and Practices on CSR	0.209	0.041	0.229	5.126	0.000
a. Dependent Variable: CSR Effectiveness						

A stepwise multiple regression analysis was conducted to identify significant predictors of CSR Effectiveness in hospitals. In Model 1, CSR Impact on Hospital Operations alone accounted for a substantial 83.9% of the variance in CSR Effectiveness, $R^2 = .839$, $F(1, 183) = 955.71$, $p < .001$, with a strong standardized beta coefficient ($\beta = .916$, $p < .001$). Model 2, which added Hospital CSR Impact on Community, significantly improved the model fit, increasing the explained variance to 91.6%, $R^2 = .916$, $F(2, 182) = 994.25$, $p < .001$. The impact on operations remained the strongest predictor ($\beta = .566$, $p < .001$), while community impact was also a significant contributor ($\beta = .447$, $p < .001$). Model 3 further introduced Awareness and Practices on CSR, yielding the best model fit with 92.7% of variance explained, $R^2 = .927$, $F(3, 181) = 763.63$, $p < .001$. In this final model, all predictors remained significant: hospital operations ($\beta = .495$, $p < .001$), community impact ($\beta = .302$,

$p < .001$), and awareness/practices ($\beta = .229$, $p < .001$). The Durbin-Watson statistic (1.923) indicated no autocorrelation, and multicollinearity was not a concern based on acceptable VIF values.

These findings suggest that CSR Effectiveness is best understood as a multidimensional construct, primarily influenced by internal operational improvements, perceptions of community benefit, and levels of CSR awareness and engagement. Hospitals seeking to enhance CSR effectiveness should therefore emphasize transparent communication of operational and community outcomes, while also fostering staff engagement through CSR-related training and awareness initiatives.

Findings and Implications

The study revealed a moderate level of awareness and implementation of Corporate Social Responsibility (CSR) initiatives among hospital staff in Mohali. The most widely recognized and implemented activities were employee welfare programs and community donations, aligning with prior research suggesting that CSR efforts in healthcare often prioritize staff well-being and social outreach (Afolabi et al., 2019; McKee et al., 2020). In contrast, environmental sustainability efforts were least acknowledged, echoing findings by Jamali et al. (2017), who note that healthcare CSR in developing regions often neglects environmental stewardship due to resource constraints.

Community impact was perceived positively, particularly in improving patient trust and institutional reputation. However, improvements in healthcare access for marginalized groups scored lower, indicating a need for more equity-driven CSR frameworks (Nisha & Gopalan, 2022). Similarly, while CSR was believed to modestly benefit hospital operations, particularly through business-sponsored patient care, skepticism remained regarding its effects on financial performance a concern also reported by Bice (2017), who argues that tangible financial outcomes from CSR in non-profit sectors are often indirect and long-term.

CSR effectiveness was rated as slightly above average. Domains like community outreach, employee well-being, and health education were seen as most impactful, consistent with Chen et al. (2021), who emphasized the role of health institutions in advancing public health knowledge and socio-emotional support. Once again, environmental sustainability lagged behind, reinforcing the need for CSR strategies that include ecological accountability (Moon, 2014).

ANOVA analysis indicated statistically significant differences in CSR perceptions across occupational roles. Doctors rated CSR dimensions awareness, activity, impact, and effectiveness more positively than hospital support staff, with nurses falling in between. These results align with Gupta & Sharma (2020), who found that medical professionals are often more engaged with strategic and community aspects of CSR, while administrative staff are typically excluded from such communications or planning processes.

No significant differences were found in perceptions of external business partnerships, suggesting a uniform understanding of this domain across groups. However, the stratified perception of internal CSR indicates a need for more inclusive CSR communication and planning, ensuring all employees, regardless of role, feel engaged (Carroll & Shabana, 2010).

Participants with over 10 years of experience consistently reported higher awareness and more favorable perceptions of CSR across all core dimensions. This confirms previous findings that tenure influences organizational understanding and perception of institutional initiatives, (2011). Experienced employees likely have greater exposure to CSR communications, deeper involvement in hospital functions, and stronger identification with institutional values.

These differences suggest that targeted induction and training are essential for new employees to reduce perception gaps and improve early-stage CSR engagement (Dahlsrud, 2008). Interestingly, the perception of business partnerships remained stable across experience levels, possibly indicating that such initiatives are either undercommunicated or do not directly involve staff, as noted in similar healthcare studies (Singh & Misra, 2021).

CSR effectiveness was strongly correlated with key variables such as: Awareness and Practices ($r = .890$),

CSR Impact on Community ($r = .890$), CSR Impact on Hospital Operations ($r = .916$).

These correlations are in line with findings by Bansal & Song (2017), who suggest that stakeholders assess CSR effectiveness primarily through visible outcomes, particularly in terms of organizational improvements and community engagement. The relatively weaker but still significant correlation with external business partnerships ($r = .214$) implies that these efforts must be better aligned with institutional goals and public health needs to influence CSR evaluations meaningfully (Freeman et al., 2020).

The regression analysis revealed that CSR Impact on Hospital Operations is the strongest predictor ($\beta = .495$), followed by Impact on Community ($\beta = .302$), and Awareness and Practices ($\beta = .229$).

These three predictors accounted for 92.7% of the variance in CSR effectiveness ($R^2 = .927$). The dominance of operational impact as a predictor reflects a practical, outcomes-focused view of CSR within the healthcare context, where initiatives are valued when they tangibly benefit care delivery and resource use (Porter & Kramer, 2011).

The inclusion of awareness and community impact as significant predictors underlines the importance of strategic communication and external stakeholder engagement in CSR success. These findings mirror the framework proposed by Matten and Moon (2008), where explicit and strategic CSR (through internal processes and community alignment) leads to higher institutional legitimacy and effectiveness.

The study yields several actionable insights such as Hospitals should anchor CSR in programs that visibly improve internal functioning patient care quality, staff conditions, and health service delivery. CSR must go beyond reputation-building to include measurable interventions for underserved populations. Partnerships with NGOs and public health units may enhance reach. Hospitals must prioritize ecological CSR components, such as sustainable waste management and energy conservation, which remain critically underdeveloped. Role-based and experience-based disparities necessitate the rollout of CSR training, internal newsletters, and feedback mechanisms for all staff tiers, especially new or support staff. Business collaborations should be outcome-driven, involving staff in their planning and execution, and regularly assessed for community health impact.

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The Hidden Costs of Mobile Phone Addiction: Mental, Academic, and Social Consequences for Adolescents

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Abstract

Mobile phone addiction has become a pervasive issue among adolescents, impacting various aspects of their daily lives. This study investigates the effects of mobile phone addiction on the mental health, academic performance, and social well-being of school-going adolescents. Utilizing a sample of 50 adolescents aged between [13 to 19 years], the study employed Dr. A. Velayudhan and Dr. S. Srividya's Mobile Phone Addiction Scale (MPAS) to assess addiction levels. The Depression Anxiety Stress Scales (DASS) were used to measure mental health outcomes, while academic performance was evaluated through self-reported grades and teacher assessments. A custom questionnaire was designed to assess social well-being, focusing on peer relationships and social interaction.

The findings indicate a significant correlation between mobile phone addiction and mental health issues, with higher addiction levels associated with increased anxiety and depressive symptoms. Moreover, a negative correlation was observed between mobile phone addiction and academic performance, suggesting that excessive phone use interferes with concentration and study time. Social well-being was also found to be negatively impacted, as adolescents with higher addiction levels reported difficulties in maintaining healthy social relationships.

These results underscore the detrimental effects of mobile phone addiction on adolescents' mental, academic, and social outcomes. The study highlights the need for interventions that promote balanced phone use among adolescents and suggests that educators, parents, and policymakers collaborate to mitigate these negative impacts. Future research should explore the long-term effects of mobile phone addiction using larger, more diverse samples.

Keywords: mobile phone addiction, adolescents, mental health, academic performance, social well-being.

Introduction

The ubiquitous presence of mobile phones has fundamentally transformed the way people communicate, access information, and engage with the world around them. For adolescents, mobile phones have become an essential tool not only for communication but also for social interaction, entertainment, and education. However, this increasing dependence on mobile devices has given rise to a new concern: mobile phone addiction. Mobile phone addiction, characterized by compulsive usage patterns that interfere with an individual's daily life, has emerged as a significant issue, particularly among adolescents who are still developing critical cognitive, emotional, and social skills. This study aims to explore the impact of mobile phone addiction on three key areas of adolescent development: mental health, academic performance, and social well-being.

1. The Rise of Mobile Phone Use Among Adolescents

Over the past decade, the ownership and use of mobile phones have increased exponentially among adolescents. According to recent statistics, over 90% of adolescents in developed countries own a mobile phone, with many spending several hours per day on their devices. Smartphones, in particular, with their advanced features, offer adolescents access to a wide range of applications, including social media platforms, gaming, streaming services, and educational tools. While these technologies provide numerous benefits, including fostering connectivity and enabling access to information, there is growing concern that excessive and uncontrolled use can lead to addictive behaviors with detrimental consequences.

The term "mobile phone addiction" has been widely discussed in both academic and public spheres, yet it remains a complex phenomenon. Mobile phone addiction is often defined as an obsessive need to use

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one's phone, leading to negative psychological and social outcomes. It is not yet officially classified as a behavioral addiction in diagnostic manuals such as the DSM-5, but it shares similarities with other forms of behavioral addictions, such as internet and gaming addiction. Adolescents, due to their developmental stage, may be more vulnerable to addictive behaviors as they seek peer validation, social interaction, and instant gratification through their devices.

2. Understanding Adolescent Development

Adolescence is a critical developmental period marked by significant biological, psychological, and social changes. During this stage, individuals undergo cognitive development, emotional regulation, and identity formation, all of which are influenced by their environment and experiences. The widespread use of mobile phones during this period raises important questions about how excessive device usage may impact these developmental processes. Mobile phone addiction, for instance, can disrupt adolescents' ability to form meaningful social connections, regulate their emotions, and manage academic responsibilities.

Several theories have been proposed to explain why adolescents may be more susceptible to mobile phone addiction. The **Social Learning Theory** posits that adolescents learn behaviors by observing and imitating others, particularly their peers. Given the importance of peer relationships during adolescence, many adolescents may feel pressured to stay constantly connected through their mobile phones to maintain their social status. Additionally, **Self-Determination Theory** suggests that adolescents seek autonomy, competence, and relatedness, and mobile phones may provide an easy and immediate way to fulfill these needs, leading to potential overuse.

3. Mobile Phone Addiction and Mental Health

Mental health during adolescence is a significant concern, and various factors contribute to psychological well-being during this critical stage of life. The relationship between mobile phone addiction and mental health has been the subject of increasing academic inquiry, with numerous studies indicating that excessive mobile phone use can have negative psychological effects. Adolescents who exhibit signs of mobile phone addiction often report higher levels of anxiety, depression, and stress. This is particularly evident when they are unable to access their phones or are compelled to reduce their usage.

One explanation for the negative impact of mobile phone addiction on mental health is the **Displacement Hypothesis**, which suggests that time spent on mobile phones displaces time that could be used for healthier activities, such as physical exercise, social interaction, and sleep. Adolescents who are addicted to their phones may experience sleep deprivation, as they often use their devices late into the night, which has been linked to increased levels of anxiety and depression. Furthermore, mobile phone addiction can contribute to a **Fear of Missing Out (FoMO)**, a psychological phenomenon characterized by the constant fear that one is missing out on rewarding experiences that others are having. Adolescents with high levels of FoMO may feel compelled to check their phones frequently, contributing to heightened stress and anxiety.

Social media, in particular, plays a pivotal role in the relationship between mobile phone addiction and mental health. Adolescents often use their mobile phones to access social media platforms, where they engage in social comparison. Constantly comparing themselves to their peers or influencers can lead to feelings of inadequacy, low self-esteem, and depression. The **Social Comparison Theory** explains how adolescents may develop negative self-concepts by comparing their lives to the curated, idealized images they see online. As a result, adolescents with mobile phone addiction may become more vulnerable to mental health issues, such as body dysmorphia and social anxiety.

4. Mobile Phone Addiction and Academic Performance

The academic performance of adolescents is another critical area affected by mobile phone addiction. As mobile phones provide easy access to distractions such as social media, games, and entertainment apps, they can interfere with students' ability to focus on academic tasks. Many studies have documented a negative correlation between mobile phone addiction and academic performance, with addicted adolescents often reporting lower grades, difficulty concentrating, and reduced academic engagement.

One possible mechanism behind this negative impact is the **Cognitive Load Theory**, which suggests that the human brain has a limited capacity for processing information. When adolescents are frequently interrupted by their phones, whether through notifications or the temptation to check social

media, their cognitive load increases, leaving less mental capacity for academic work. Multitasking between academic tasks and phone usage can further exacerbate this issue, as research shows that multitasking negatively affects working memory, attention, and overall cognitive performance.

Another factor contributing to the decline in academic performance is the **Time Displacement Effect**, where time spent on mobile phones reduces the time available for studying or engaging in academic activities. Adolescents who are addicted to their phones may procrastinate on assignments, miss deadlines, and struggle to retain information due to reduced study time. Furthermore, mobile phone addiction has been linked to poor sleep quality, which in turn can affect cognitive function, memory consolidation, and the ability to perform well academically.

Despite these negative effects, it is important to acknowledge that mobile phones also offer educational opportunities. Many adolescents use their devices for academic purposes, such as accessing educational apps, conducting research, or collaborating with peers. Therefore, the relationship between mobile phone use and academic performance is not entirely negative, but mobile phone addiction—marked by excessive and non-purposeful use—undermines the potential academic benefits.

5. Mobile Phone Addiction and Social Well-Being

Social well-being, defined as the quality of an individual's social relationships and their ability to interact effectively with others, is an essential component of adolescent development. Mobile phones, while intended to facilitate communication, can paradoxically hinder social interactions when used excessively. Adolescents with mobile phone addiction may become more socially isolated, as they prefer to engage with their phones rather than interact face-to-face with family, friends, or peers. This can lead to a reduction in social skills, an increase in loneliness, and challenges in forming meaningful relationships.

Mobile phone addiction can also affect the quality of existing relationships. Adolescents who are preoccupied with their phones during social interactions may appear disengaged or uninterested, which can strain relationships with friends and family. **Social Presence Theory** suggests that real-time social interactions are critical for building trust and empathy, but these interactions are diminished when adolescents are overly reliant on mediated communication through their phones. The lack of non-verbal cues in text-based communication can lead to misunderstandings and weakened social bonds.

Moreover, mobile phone addiction can contribute to the development of **Problematic Social Media Use (PSMU)**, where adolescents prioritize online interactions over in-person relationships. While social media can provide opportunities for connection, excessive use can distort adolescents' perceptions of social reality, leading to superficial interactions and a reduced sense of belonging. Studies have shown that adolescents who are addicted to their phones often report feeling more socially disconnected, despite having numerous online connections.

On the other hand, mobile phones can enhance social well-being when used appropriately. Adolescents can use their phones to maintain relationships with distant friends or family members, participate in online communities, and engage in collaborative learning. However, when mobile phone use becomes addictive, it compromises the social benefits and contributes to social isolation and emotional disconnection.

6. Addressing Mobile Phone Addiction

Given the significant impact of mobile phone addiction on mental health, academic performance, and social well-being, it is crucial to address this issue through targeted interventions. Parents, educators, and policymakers all have roles to play in mitigating the risks associated with excessive mobile phone use among adolescents.

Parents can implement strategies to monitor and regulate their children's phone usage by setting boundaries around screen time and encouraging healthy habits, such as designated phone-free times for family interaction or homework. Schools can also play a role by incorporating digital literacy programs that teach adolescents how to manage their phone use effectively and understand the psychological mechanisms behind addictive behaviors. Such programs could focus on promoting a balanced approach to mobile phone use, highlighting the importance of offline activities, such as sports, hobbies, and face-to-face social interactions.

Policymakers can contribute by supporting research on mobile phone addiction and advocating for public health campaigns that raise awareness about its potential consequences. Additionally, app

developers and tech companies should be encouraged to design features that promote healthier phone usage, such as usage tracking, screen time limits, and notifications that encourage breaks from phone use.

Mobile phone addiction among adolescents is a growing concern that requires attention from various sectors of society. As this study aims to demonstrate, mobile phone addiction has far-reaching consequences for adolescents' mental health, academic performance, and social well-being. While mobile phones offer numerous benefits, their addictive potential can undermine key aspects of adolescent development, leading to negative psychological, cognitive, and social outcomes. By recognizing the risks associated with mobile phone addiction and implementing strategies to promote balanced

Literature Review

The issue of mobile phone addiction, particularly among adolescents, has garnered increasing attention in the field of academic research. As mobile phone use becomes a near-universal phenomenon, the effects of excessive and addictive phone use on various aspects of adolescent life warrant close examination. This review synthesizes the current body of literature on mobile phone addiction and its impacts on mental health, academic performance, and social well-being, with a specific focus on adolescents. The review also discusses existing theories, research gaps, and potential areas for further investigation.

1. Defining Mobile Phone Addiction

Mobile phone addiction, often referred to as problematic mobile phone use, is a form of behavioral addiction characterized by the compulsive use of mobile phones, which interferes with daily functioning and leads to negative psychological, social, and academic outcomes. Unlike substance addiction, mobile phone addiction does not involve physical substances but instead reflects a behavioral pattern that is difficult to control despite adverse consequences. Several researchers have worked to define and conceptualize mobile phone addiction, though a universally accepted definition is still lacking.

According to **Billieux et al. (2015)**, mobile phone addiction can be categorized into several dimensions: tolerance, withdrawal, relapse, and conflict. Tolerance refers to the increasing need for longer periods of phone use to achieve satisfaction, while withdrawal manifests as discomfort when the phone is inaccessible. Relapse involves a return to compulsive use after attempts to reduce usage, and conflict reflects the interference of phone use with other aspects of life. **Griffiths (2012)** also contributed to the understanding of mobile phone addiction by identifying it as a subset of technology-based behavioral addictions, similar to internet and gaming addiction. This theoretical framework is essential for understanding the broader scope of digital addiction in adolescents.

The **Mobile Phone Addiction Scale (MPAS)** developed by **Velayudhan and Srividya (2021)** is one of the most widely used tools for assessing the severity of mobile phone addiction. It incorporates items measuring behavioral dependence, emotional connection to the phone, and the impact of phone use on daily life. The MPAS has been validated in multiple studies and is frequently used in research on adolescents due to its specificity and reliability.

2. Theoretical Frameworks on Mobile Phone Addiction

Several theoretical frameworks have been proposed to explain the mechanisms behind mobile phone addiction, each offering insights into the cognitive, emotional, and social factors that contribute to excessive mobile phone use among adolescents.

2.1 Social Learning Theory

Social Learning Theory suggests that behaviors are learned through observing and imitating others, particularly those within one's peer group. Adolescents, who are highly influenced by their friends and classmates frequently using mobile phones. The need for social validation, combined with the ease of access to social media and communication apps, can reinforce addictive behaviors. **Bandura (1977)**, the pioneer of Social Learning Theory, argued that individuals are more likely to engage in behaviors that they perceive to be rewarded or reinforced. In the context of mobile phone use, adolescents may feel rewarded by the instant gratification of likes, comments, and messages on social media, which perpetuates their need for constant phone use.

2.2 Self-Determination Theory

The **Self-Determination Theory (SDT)** proposed by **Deci and Ryan (2000)** provides another lens through which mobile phone addiction can be understood. SDT posits that individuals have three fundamental psychological needs: autonomy, competence, and relatedness. Adolescents may turn to their mobile phones to fulfill these needs, particularly relatedness, as they seek to connect with others through

social media and messaging apps. However, excessive phone use can lead to an imbalance where the pursuit of online connections comes at the expense of face-to-face interactions and other healthy behaviors. Mobile phone addiction, in this context, can be seen as a maladaptive way of fulfilling psychological needs.

2.3 The Fear of Missing Out (FoMO)

The concept of **Fear of Missing Out (FoMO)** has gained significant attention in research on mobile phone addiction. FoMO is defined as the pervasive apprehension that others are having rewarding experiences from which one is absent. **Przybylski et al. (2013)** identified FoMO as a significant predictor of mobile phone addiction, especially among adolescents who are more likely to experience social anxiety and insecurity. Adolescents who are addicted to their phones may feel compelled to check their devices constantly to ensure they are not missing out on important social interactions or events. This compulsive checking behavior reinforces the cycle of addiction and contributes to heightened anxiety and stress.

3. Mobile Phone Addiction and Mental Health

Mental health is a critical area of concern when examining the effects of mobile phone addiction on adolescents. A growing body of literature highlights the strong correlation between excessive mobile phone use and negative mental health outcomes, including anxiety, depression, stress, and sleep disturbances.

3.1 Anxiety and Depression

Numerous studies have demonstrated a link between mobile phone addiction and increased levels of anxiety and depression among adolescents. **Elhai, Levine, Dvorak, and Hall (2017)** conducted a meta-analysis that found a significant association between problematic smartphone use and higher levels of anxiety and depressive symptoms. The study suggested that adolescents who use their phones excessively may become emotionally dependent on their devices, leading to feelings of anxiety when they are unable to access them.

Additionally, the constant engagement with social media can exacerbate feelings of inadequacy and low self-esteem, particularly for adolescents who are prone to social comparison. **Vogel et al. (2014)** found that adolescents who frequently compare themselves to others on social media platforms are more likely to experience negative self-concept and depressive symptoms. Social media fosters an environment where adolescents are constantly exposed to idealized versions of their peers' lives, leading to unrealistic expectations and feelings of dissatisfaction with their own lives.

3.2 Stress

Mobile phone addiction has also been linked to higher levels of stress among adolescents. **Thomee et al. (2011)** found that adolescents who reported high levels of mobile phone use also reported higher levels of perceived stress. This stress may arise from the constant demands of being available and responsive to messages, notifications, and social media interactions. The study also highlighted the role of **technostress**, a term used to describe the stress experienced due to the overuse of technology. Technostress can lead to cognitive overload, emotional exhaustion, and decreased well-being.

3.3 Sleep Disturbances

Another significant consequence of mobile phone addiction is its impact on sleep quality. Adolescents who are addicted to their phones often use them late into the night, leading to disrupted sleep patterns. **Demirci, Akgonul, and Akpinar (2015)** conducted a study that found a strong correlation between smartphone addiction and poor sleep quality among adolescents. The blue light emitted by phone screens can interfere with the production of melatonin, a hormone that regulates sleep, leading to difficulty falling asleep and staying asleep. Poor sleep quality, in turn, is associated with a range of negative mental health outcomes, including increased anxiety, irritability, and difficulty concentrating.

4. Mobile Phone Addiction and Academic Performance

Academic performance is a key area of concern when evaluating the impact of mobile phone addiction on adolescents. A large body of research indicates that excessive mobile phone use negatively affects academic outcomes, as it interferes with study time, focus, and cognitive function.

4.1 Distraction and Multitasking

One of the primary ways in which mobile phone addiction affects academic performance is through distraction. Adolescents who are addicted to their phones often find it difficult to concentrate on academic tasks, as they are frequently interrupted by notifications or the temptation to check their devices. **Junco**

and Cotton (2012) found that students who frequently used their phones during class had lower grades and academic performance compared to those who used their phones less frequently. The study suggested that multitasking between academic tasks and phone use impairs cognitive function, making it harder for students to retain information and perform well in exams.

4.2 Time Displacement

The **Time Displacement Hypothesis** offers another explanation for the negative relationship between mobile phone addiction and academic performance. This hypothesis suggests that time spent on non-academic activities, such as phone use, displaces time that could otherwise be spent on studying or completing homework. Lepp et al. (2014) found that students who spent more time on their phones reported lower academic achievement due to reduced study time. The study also highlighted that students who were addicted to their phones were more likely to procrastinate on academic tasks, leading to missed deadlines and poorer grades.

4.3 Sleep and Cognitive Function

As discussed earlier, mobile phone addiction can lead to sleep disturbances, which in turn affect cognitive function and academic performance. Hawi and Samaha (2016) found that students who reported poor sleep quality due to excessive phone use also reported lower academic performance. Sleep plays a crucial role in memory consolidation and cognitive processing, both of which are essential for academic success. Adolescents who are addicted to their phones may experience difficulties in focusing, retaining information, and performing well in exams due to sleep deprivation.

5. Mobile Phone Addiction and Social Well-Being

Social well-being, defined as the quality of an individual's relationships and social interactions, is another important area impacted by mobile phone addiction. While mobile phones are designed to enhance communication, excessive use can lead to social isolation and a decline in face-to-face interactions.

5.1 Social Isolation and Loneliness

Several studies have found a link between mobile phone addiction and increased feelings of social isolation and loneliness. Bian and Leung (2015) found that adolescents who were addicted to their phones reported higher levels of loneliness, despite having numerous online connections. The study suggested that the quality of online relationships is often superficial and does not provide the same emotional support as face-to-face interactions. Adolescents who prioritize online communication over in

Problem Statement

The overuse of mobile phones among adolescents has raised concerns about physical and mental health, academic outcomes, and social skills. Identifying the consequences of mobile phone addiction is crucial for devising appropriate interventions.

Research Objectives

1. To explore the impact of mobile phone addiction on the mental health of adolescents.
2. To examine how mobile phone addiction influences academic performance.
3. To analyze the social implications of mobile phone addiction among adolescents.

Research Hypothesis

H1: Mobile phone addiction negatively affects adolescents' mental health, academic performance, and social well-being.

Methodology

Research Design

A **quantitative, cross-sectional survey** design was employed to examine the relationships between mobile phone addiction and its effects on mental health, academic performance, and social well-being among adolescents. Data was collected through standardized questionnaires and analyzed using descriptive and inferential statistical methods.

2. Participants

The study was conducted with a sample of 50 school-going adolescents aged between 13 and 19 years. The participants were selected using a **purposive sampling** method to ensure an equal distribution of boys and girls.

- **Total participants:** 50 (25 boys and 25 girls)
- **Age range:** 13–19 years

Participants were recruited from local schools after obtaining permission from school authorities and informed consent from both the adolescents and their parents. The inclusion criteria for participation were as follows:

- Regular use of mobile phones (at least 1 hour per day)
- Willingness to participate in the study

3. Measures

Three key constructs were measured: **mobile phone addiction**, **mental health**, and **social well-being**. The following standardized scales were used:

1. Mobile Phone Addiction:

- **Instrument:** Mobile Phone Addiction Scale (MPAS) by Dr. A. Velayudhan and Dr. S. Srividya.
- **Description:** This scale measures the level of addiction to mobile phones using 37 items scored on a Likert-type scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The total score reflects the severity of mobile phone addiction, categorized into three levels: low, moderate, and high.

Mental Health:

- **Instrument:** Depression, Anxiety, and Stress Scales (DASS-21).
- **Description:** The DASS-21 consists of 21 items divided into three subscales measuring depression, anxiety, and stress. Participants rate each item on a 4-point Likert scale, with higher scores indicating greater levels of emotional distress.

Academic Performance:

- **Instrument:** Self-reported Grade Point Average (GPA) and teacher evaluations.
- **Description:** Academic performance was measured through students' self-reported GPA, verified by teacher evaluations. GPA was standardized on a 4.0 scale, with higher scores indicating better academic performance.

1. Social Well-Being:

- **Instrument:** Social Interaction and Peer Relationship Questionnaire.
- **Description:** This instrument measured two key aspects of social well-being: social interaction frequency (the number of face-to-face interactions) and peer relationship quality (as perceived by the participants). The scale includes 10 items rated on a 5-point Likert scale.

4. Data Collection Procedure

Data collection took place over a period of one month. The following steps were followed:

1. **Ethical Approval:** Approval was obtained from the Institutional Ethics Committee, ensuring that the study complied with ethical guidelines for research involving adolescents.
2. **Informed Consent:** Both parental consent and participant assent were obtained before data collection.
3. **Administration of Questionnaires:** Questionnaires were administered to participants in a classroom setting to ensure uniformity. The participants were given 45 minutes to complete the questionnaires under the supervision of the researcher.
4. **Confidentiality:** Participants were assured that their responses would remain confidential and anonymous. Personal identifiers were not recorded to ensure privacy.

5. Data Analysis

This analysis is based on 50 school-going adolescents, comprising 25 boys and 25 girls. The study explores the relationship between mobile phone addiction and its impact on mental health, academic performance, and social well-being.

1. Descriptive Statistics

1.1 Participant Demographics

Gender	Frequency	Percentage
Boys	25	50%
Girls	25	50%
Total	50	100%

1.2 Mobile Phone Addiction Levels

The **Mobile Phone Addiction Scale (MPAS)** was used to assess addiction levels. The table below presents the mean addiction scores for both boys and girls.

Gender	Mean Addiction Score	Standard Deviation (SD)
Boys	68.4	12.5
Girls	73.2	10.8
Total	70.8	11.6

Adolescents were categorized into three addiction levels: low, moderate, and high.

Addiction Level	Boys (%)	Girls (%)	Total (%)
Low	20%	16%	18%
Moderate	48%	52%	50%
High	32%	32%	32%

1.3 Mental Health (DASS)

The **Depression, Anxiety, and Stress Scales (DASS)** were used to measure the participants' mental health. Mean scores for boys and girls are presented below.

Mental Health Indicator	Boys (Mean ± SD)	Girls (Mean ± SD)	Total (Mean ± SD)
Depression	15.2 ± 3.5	16.8 ± 3.1	16.0 ± 3.3
Anxiety	14.5 ± 4.0	15.7 ± 3.8	15.1 ± 3.9
Stress	16.9 ± 4.5	17.5 ± 4.2	17.2 ± 4.3

1.4 Academic Performance

Academic performance was measured using self-reported GPA and teacher evaluations. The table below shows the average GPA for boys and girls.

Gender	Mean GPA	Standard Deviation (SD)
Boys	3.2	0.5
Girls	3.4	0.4
Total	3.3	0.45

1.5 Social Well-Being

Social well-being was assessed through face-to-face interactions and peer relationship quality.

Social Well-Being Indicator	Boys (Mean ± SD)	Girls (Mean ± SD)	Total (Mean ± SD)
Social interaction frequency	4.8 ± 1.2	4.6 ± 1.1	4.7 ± 1.15
Peer relationship quality	3.9 ± 0.8	4.2 ± 0.9	4.05 ± 0.85

2. Correlation Analysis

2.1 Mobile Phone Addiction and Mental Health

A Pearson correlation was conducted to analyze the relationships between mobile phone addiction and the mental health indicators (depression, anxiety, stress). The table below presents the correlation coefficients for boys, girls, and the total sample.

Mental Health Indicator	Boys (r)	Girls (r)	Total (r)
Depression	0.45	0.48	0.46
Anxiety	0.42	0.46	0.44
Stress	0.40	0.43	0.41

2.2 Mobile Phone Addiction and Academic Performance

The relationship between mobile phone addiction and academic performance (GPA) was analyzed for both boys and girls.

Gender	Correlation (r) between MPAS and GPA
Boys	-0.38
Girls	-0.41
Total	-0.40

2.3 Mobile Phone Addiction and Social Well-Being

Correlation analysis was conducted to explore the relationship between mobile phone addiction and social well-being indicators (social interaction frequency and peer relationship quality).

Social Well-Being Indicator	Boys (r)	Girls (r)	Total (r)
Social interaction frequency	-0.33	-0.35	-0.34
Peer relationship quality	-0.40	-0.42	-0.41

3. Regression Analysis

To further investigate the effects of mobile phone addiction on mental health, academic performance, and social well-being, multiple regression analyses were conducted. The results for boys and girls are presented separately.

3.1 Predicting Mental Health

A multiple regression was conducted to examine if mobile phone addiction predicts depression, anxiety, and stress scores, controlling for age.

Dependent Variable	Boys (β)	Girls (β)	Total (β)
Depression	0.42	0.45	0.44
Anxiety	0.38	0.41	0.40
Stress	0.35	0.38	0.36

3.2 Predicting Academic Performance

The table below shows the regression results predicting GPA from mobile phone addiction.

Gender	Regression Coefficient (β) for GPA
Boys	-0.36
Girls	-0.39
Total	-0.37

3.3 Predicting Social Well-Being

Regression analysis was conducted to predict social interaction frequency and peer relationship quality based on mobile phone addiction.

Dependent Variable	Boys (β)	Girls (β)	Total (β)
Social interaction frequency	-0.31	-0.33	-0.32
Peer relationship quality	-0.37	-0.39	-0.38

Results

The following section presents the key results of the study, based on the data analysis of the 50 adolescent participants (25 boys and 25 girls). These results highlight the relationship between mobile phone addiction and its effects on mental health, academic performance, and social well-being.

1. Gender Differences in Mobile Phone Addiction

The study revealed gender differences in mobile phone addiction scores, with girls having slightly higher mean scores than boys. Specifically:

- **Boys' Mean Addiction Score:** 68.4 (SD = 12.5)
- **Girls' Mean Addiction Score:** 73.2 (SD = 10.8)
- **Overall Mean Addiction Score:** 70.8 (SD = 11.6)

This suggests that, on average, girls may exhibit slightly higher levels of mobile phone addiction than boys.

2. Mental Health and Mobile Phone Addiction

A key finding of the study was the strong positive correlation between mobile phone addiction and mental health issues (depression, anxiety, and stress). This was evident for both boys and girls. Higher levels of mobile phone addiction were associated with higher scores on the Depression, Anxiety, and Stress Scales (DASS).

- **Correlation Between Mobile Phone Addiction and Mental Health Indicators:**

- Depression: $r = 0.46$ ($p < 0.01$)
- Anxiety: $r = 0.44$ ($p < 0.01$)
- Stress: $r = 0.41$ ($p < 0.01$)

This means that as mobile phone addiction increases, so does the likelihood of experiencing higher levels of depression, anxiety, and stress. The relationship was slightly stronger for girls, but boys exhibited a similar trend.

3. Academic Performance and Mobile Phone Addiction

Mobile phone addiction had a negative impact on the academic performance of adolescents, as measured by their GPA. The results showed a significant negative correlation between mobile phone addiction and GPA for both boys and girls.

- **Correlation Between Mobile Phone Addiction and GPA:**

- Boys: $r = -0.38$ ($p < 0.05$)
- Girls: $r = -0.41$ ($p < 0.05$)
- Overall: $r = -0.40$ ($p < 0.05$)

This suggests that adolescents with higher mobile phone addiction tend to have lower academic performance. Girls showed a slightly stronger negative correlation than boys, indicating that mobile phone addiction may have a greater impact on their academic outcomes.

4. Social Well-Being and Mobile Phone Addiction

The study also found that mobile phone addiction was negatively correlated with social well-being indicators, such as social interaction frequency and peer relationship quality. Adolescents with higher levels of mobile phone addiction reported fewer face-to-face interactions and poorer relationships with their peers.

- **Correlation Between Mobile Phone Addiction and Social Interaction Frequency:**

- Boys: $r = -0.33$ ($p < 0.05$)
- Girls: $r = -0.35$ ($p < 0.05$)
- Overall: $r = -0.34$ ($p < 0.05$)

- **Correlation Between Mobile Phone Addiction and Peer Relationship Quality:**

- Boys: $r = -0.40$ ($p < 0.01$)
- Girls: $r = -0.42$ ($p < 0.01$)
- Overall: $r = -0.41$ ($p < 0.01$)

These results suggest that mobile phone addiction can lead to diminished social interactions and weaker peer relationships, particularly for girls, who showed slightly stronger negative correlations.

5. Regression Analysis

Multiple regression analyses were conducted to predict mental health, academic performance, and social well-being based on mobile phone addiction scores, while controlling for other factors (such as age).

5.1 Predicting Mental Health

The regression analysis showed that mobile phone addiction was a significant predictor of mental health outcomes. Adolescents with higher mobile phone addiction scores were more likely to report higher levels of depression, anxiety, and stress.

- Depression: $\beta = 0.44$ ($p < 0.01$)
- Anxiety: $\beta = 0.40$ ($p < 0.01$)
- Stress: $\beta = 0.36$ ($p < 0.01$)

5.2 Predicting Academic Performance

Mobile phone addiction was also a significant negative predictor of academic performance. Higher levels of addiction were associated with lower GPA scores.

- **Regression Coefficient (GPA):** $\beta = -0.37$ ($p < 0.05$)

5.3 Predicting Social Well-Being

Finally, mobile phone addiction was a significant predictor of lower social well-being, negatively affecting both social interaction frequency and peer relationship quality.

- Social interaction frequency: $\beta = -0.32$ ($p < 0.05$)
- Peer relationship quality: $\beta = -0.38$ ($p < 0.01$)

Summary of Key Results

1. **Mobile Phone Addiction and Mental Health:** Strong positive correlations were found between mobile phone addiction and depression, anxiety, and stress. Higher addiction levels were linked to poorer mental health.
2. **Mobile Phone Addiction and Academic Performance:** A significant negative correlation between mobile phone addiction and GPA suggests that adolescents who are more addicted to their phones tend to perform worse academically.
3. **Mobile Phone Addiction and Social Well-Being:** Higher mobile phone addiction was associated with reduced social interaction frequency and lower peer relationship quality, suggesting that excessive phone use may harm adolescents' social lives.

These results highlight the broad impact of mobile phone addiction on various aspects of adolescents' lives, demonstrating the need for interventions to help manage and reduce addiction, particularly for improving mental health, academic outcomes, and social well-being.

Discussion

The aim of this study was to examine the impact of mobile phone addiction on the mental health, academic performance, and social well-being of adolescents. The results indicate a clear association between mobile phone addiction and negative outcomes across these domains, providing valuable insights into the extent of mobile phone usage and its consequences on adolescents. This section discusses the key findings in relation to existing literature, the theoretical implications of the results, and recommendations for future research and practical interventions.

1. Mobile Phone Addiction and Mental Health

The findings suggest that adolescents with higher levels of mobile phone addiction exhibit significantly higher levels of depression, anxiety, and stress. These results are consistent with prior research, which has consistently found a link between excessive mobile phone use and poor mental health outcomes. For example, Elhai et al. (2017) noted that problematic smartphone use is often associated with higher levels of anxiety and depression in adolescents.

There are several possible explanations for these findings. First, excessive mobile phone use, particularly for social media and gaming, can reduce the time available for healthy activities, such as physical exercise, sleep, and face-to-face interactions, all of which are crucial for mental well-being. Second, the constant exposure to online content and social comparison can increase feelings of inadequacy and loneliness, which may exacerbate symptoms of depression and anxiety. Lastly, the overuse of mobile phones can lead to addictive behaviors, such as a constant need for notifications or compulsive checking, contributing to elevated stress levels.

The slightly higher correlation between mobile phone addiction and mental health issues in girls compared to boys in this study may reflect gender differences in how adolescents use mobile phones. Research has suggested that girls tend to engage more in social media, which has been linked to poorer mental health outcomes due to the pressure of online self-presentation and comparison with others (Vannucci et al., 2017). In contrast, boys may use their phones more for gaming or entertainment, which might contribute differently to their mental health.

2. Mobile Phone Addiction and Academic Performance

This study found a significant negative relationship between mobile phone addiction and academic performance, as measured by GPA. Adolescents with higher levels of mobile phone addiction tended to have lower academic achievement. This finding aligns with previous research suggesting that excessive

mobile phone use can interfere with concentration, study habits, and overall academic success (Lepp, Barkley, & Karpinski, 2015).

Several mechanisms could explain the negative impact of mobile phone addiction on academic performance. Mobile phones, particularly smartphones, are a constant source of distraction. Adolescents who are addicted to their phones may struggle to focus during class or while studying, leading to reduced comprehension and retention of academic material. Additionally, mobile phone addiction may contribute to procrastination, where students spend more time on their devices than on completing assignments or preparing for exams. Sleep deprivation, a common consequence of late-night phone use, can also negatively affect cognitive functioning and academic performance.

Interestingly, the study revealed a slightly stronger negative correlation between mobile phone addiction and academic performance among girls than boys. This could be due to the fact that girls, on average, might engage more frequently in social media, which is particularly time-consuming and mentally taxing. In contrast, boys may engage in gaming or other forms of phone use that might be less directly disruptive to academic tasks. However, both genders experience academic consequences when mobile phone usage becomes excessive.

3. Mobile Phone Addiction and Social Well-Being

The study revealed that adolescents with higher levels of mobile phone addiction reported poorer social well-being, including fewer face-to-face social interactions and lower peer relationship quality. This result is in line with previous research indicating that excessive mobile phone use can displace real-world social interaction, leading to social isolation and poorer relationship quality (Roberts & David, 2020).

One reason for this finding may be that adolescents who are highly addicted to their mobile phones spend a disproportionate amount of time engaging in online activities, such as social media or gaming, which can take away time from in-person interactions. Additionally, mobile phone addiction may alter the quality of social interactions, even when they occur in person. Adolescents who are constantly checking their phones during conversations may appear distracted or disengaged, leading to weakened interpersonal connections and a reduced sense of social support.

The negative impact of mobile phone addiction on peer relationship quality might be more pronounced among adolescents who heavily rely on their phones for social validation. Adolescents with high mobile phone addiction may prioritize virtual interactions over real-life relationships, which may be less emotionally fulfilling, thereby reducing the overall quality of their peer relationships. This reliance on virtual communication may lead to feelings of loneliness and disconnect, even in the presence of friends or peers.

Gender differences were also noted in this domain, with girls showing slightly stronger negative correlations between mobile phone addiction and social well-being indicators than boys. This may reflect the gendered nature of social interactions among adolescents, with girls potentially relying more heavily on social media and text-based communication for peer interactions, which may exacerbate feelings of isolation and loneliness when overused.

4. Theoretical Implications

This study supports the **displacement hypothesis**, which suggests that time spent engaging in one activity (e.g., mobile phone use) displaces time that could be spent on other activities (e.g., studying, socializing, or sleeping). The findings also align with **social comparison theory**, which posits that individuals, particularly adolescents, may experience negative emotions such as depression and anxiety when they compare themselves unfavorably to others on social media platforms.

The results further highlight the importance of considering **gender differences** in mobile phone use patterns and their effects. Girls, who are more likely to engage in social comparison on social media, may be at greater risk for mental health problems associated with mobile phone addiction. In contrast, boys, who may use their phones more for gaming, may experience different but still significant impacts on their well-being.

5. Practical Implications

The findings of this study have important practical implications for educators, parents, and policymakers. Given the strong link between mobile phone addiction and negative mental health, academic, and social outcomes, interventions aimed at reducing mobile phone addiction among adolescents are urgently needed. Schools can play a role in promoting digital literacy and responsible

phone use by implementing programs that teach students about the potential harms of excessive phone use and strategies for balancing online and offline activities.

Parents can also be encouraged to set limits on their children's phone use, particularly during study times and late at night, when phone use can interfere with sleep and academic performance. Moreover, mental health professionals working with adolescents should consider assessing mobile phone use patterns as part of their evaluations and providing counseling on how to reduce phone addiction.

6. Limitations and Future Research

While this study provides valuable insights, there are several limitations that should be acknowledged. First, the **cross-sectional design** limits the ability to make causal inferences. Future research could employ longitudinal designs to better understand how mobile phone addiction develops over time and how it influences mental health, academic performance, and social well-being in the long term.

Second, the use of **self-reported measures** may have introduced bias, as participants may not accurately report their phone usage or mental health status. Future studies could incorporate objective measures, such as screen time tracking, to provide more accurate data on phone usage patterns.

Lastly, the **sample size** was relatively small ($n=50$), and the participants were drawn from a specific geographical region, which may limit the generalizability of the findings. Future studies should aim to recruit larger, more diverse samples to confirm and expand upon these findings.

7. Conclusion

In conclusion, this study highlights the significant impact of mobile phone addiction on adolescents' mental health, academic performance, and social well-being. Adolescents who are highly addicted to their phones are more likely to experience higher levels of depression, anxiety, and stress, perform worse academically, and have poorer social relationships. These findings emphasize the need for interventions aimed at reducing mobile phone addiction among adolescents to promote healthier mental and academic outcomes. Future research should continue to explore this critical issue, with a focus on developing effective prevention and intervention strategies tailored to the needs of adolescents.

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Ageing in India: A Comely Experience?

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Abstract

As India Stands on the cusp of an epochal demographic shift, ageing, is no more a trivial matter but a thorn that can no more be ignored. As the country grapples with the realities of a greying horizon, it becomes pertinent to ensure the welfare of the elderly. This writing critically analyses the legal architecture that the country has put in place for the maintenance and welfare of its elderly, particularly through the lens of the Maintenance and welfare of Parents and Senior Citizens Act. The Article explores how far the law has succeeded in shouldering its share of responsibility and where it falters under its own limitations. The article also reflects upon the living realities of the country's elderly and how they often find themselves at the intersection of dignity and dependence. Examining the issues faced by these laws the article proposes certain well-considered reforms that can help strike a balance between support and autonomy and ensure the nation's commitment towards welfare of its elderly.

Keywords: Elderly Welfare, Geriatric Well-being, Filial Responsibility, Maintenance & Welfare Law, Senior Citizens Rights.

Introduction

All great chapters must close, and, sadly, so too must India's era as a youth nation. For now, with 66 per cent of its people under the age of 35 years¹, India boasts the world's largest youth population—a vibrant force shaping its destiny. Yet, time is an unrelenting tide, and this demographic advantage is but a fleeting gift. By 2050, as projected by the UNFPA India Ageing Report, 20.8 per cent of the nation's populace will be over 60, making up a staggering 17 per cent of the world's elderly.² The tides of time will inevitably shift, and the youth-driven vigour of today will give way to the wisdom of an ageing nation.

These figures direct one's attention to the fact that this sizeable population, which, for the time being, is flourishing in all aspects, is going to need to be mothered in times to come.

These inevitable demographic shifts, marked by a rising elderly population, make it imperative to reassess the existing laws on elderly maintenance and care.³

Elderly care is a wider set, of which providing financial maintenance is a subset, albeit arguably the most important one. Beyond financial maintenance, elderly care encompasses a broad spectrum of support including healthcare, assisted living, old age homes, pension schemes and creating an overall holistic environment that fosters overall geriatric well-being.

Why financial maintenance is being postulated here as the most important subset of elderly care can be ascertained from the fact that most other aspects, barring a certain few, of elderly care can very well be tended to if the maintenance is handsome. Money, in many ways, is the key that unlocks the doors to quality healthcare, dignified living, and a life of comfort in one's twilight years, and therefore, the phrase money makes the mare go.

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¹ Ministry of Youth Affairs & Sports, Government of India, *National Youth Policy 2021*, <https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/may/doc20225553401.pdf>.

² U.N. Population Fund (UNFPA) INDIA, *India Ageing Report 2023: Caring for Our Elders—Institutional Responses* 47 (2023).

³ Ashish Bose, *Increasing Life Expectancy and the Elderly*, 43 *ECON. & POL. WKLY.* 41 (2008), <http://www.jstor.org/stable/40277825>.

For an ageing individual, with increasingly limited capacity to look after their needs, it becomes important for us to ensure that their well-being is taken care of that and that their old years are for rest and relaxation and not for toil and hardship. This inevitably leads us to scrutinise the maintenance laws in place for senior citizens in India—to determine whether they truly pass the muster or, instead, miss the mark, leaving the elderly to fend for themselves in their most vulnerable years.

Who are the ‘elderly’?

The elderly, or ‘senior citizens’ as one would like to refer are looked at in a plethora of ways through various lenses. The societal definition of ‘elderly’ portrays an image of an old person with grey hair and a slightly hunched back; while for a layman, this definition is acceptable, it falls short of precision demanded in a court of law.

One of the most widely accepted views, championed by the United Nations, frequently refers to individuals aged 60 years or above as “older persons”.⁴

Similar is the definition adopted under the Maintenance and Welfare of Parents and Senior Citizens Act, 2007⁵. Section 2(h) of the act describes a senior citizen as someone who has attained the age of sixty years⁶. In a similar fashion, other legislations like the Income Tax Act, 1961, policy documents like the National Policy on Older Persons, 1999, or, for that matter, old age benefit schemes like Pradhan Mantri Vaya Vandana Yojana use sixty years as the eligibility age for the senior citizens to avail benefits. Therefore, a wider consensus has developed that the term ‘elderly’ encapsulates those who have crossed the threshold of sixty years of age.

Elderly Care & Maintenance models around the world

The notion of elderly care and maintenance has been around the globe since the dawn of time. Biblical references like *Honour thy father and thy mother*⁷ indicate how intricately the concept of elderly care is woven into the fabric of societies worldwide, serving as the bedrock upon which the very foundation of the family system rests, binding generations together in a timeless thread of duty and care.

From the Confucian reverence of ‘Xiao’⁸ and the Hindu sanctity of ‘Pitru Seva’ to Japan’s cherished ‘Oyako Kankei,’ Rome’s virtuous ‘Pietas,’ and Vietnam’s harmonious blend of Confucian and Buddhist ‘Guanxi’, the idea of duty and respect toward one’s parents and elders is a deep-seated concept that truly has transcended cultures and civilisations alike.

Germany

As far as modern times are concerned, Germany, back in 1889, under the rule of Emperor William I, became the first country to introduce the world’s first state-funded pension system, providing old-age insurance for workers aged 70 and above⁹. The idea was posited at the behest of the then-German Chancellor Otto von Bismarck, who drew his motivation to introduce such a social insurance program from the vision of a German economy running at full throttle.

Another cloaked motive behind the introduction of this scheme was to nip the demands for more radical socialist measures in the bud. This program provided for contributory retirement as well as disability benefits, wherein the contribution was to be tripartite and was collected from the employer, the employee and the government.

⁴ U.N. High Commissioner for Refugees, *Older Persons*, UNHCR Emergency Handbook, <https://emergency.unhcr.org/protection/persons-risk/older-persons>.

⁵ The Maintenance and Welfare of Parents and Senior Citizens Act, 2007.

⁶ The Maintenance and Welfare of Parents and Senior Citizens Act, 2007, §.2(h).

⁷ *Exodus* 20:12.

⁸ J.B. Nie & D.G. Jones, *Confucianism and Organ Donation: Moral Duties from Xiao (Filial Piety) to Ren (Humaneness)*, 22 MED., HEALTH CARE & PHILOS. 583 (2019).

⁹ Erik Grimmer-Solem, *A History of the German Public Pension System: Continuity amid Change*, 123 AM. HIST. REV. 318, 318–20 (2018) (book review).

The reason it becomes imperative to examine the German model is because not only did Germany become the first country to introduce such a scheme, but also because it presently is one of the only five super-aged countries in the world. With one-third of its population expected to surpass the mark of 65 years of age by 2050

Although this pension scheme was far from a maintenance law in the strict sense, it marked the legal system's first institutionalised recognition of the elderly's right to financial security, laying the groundwork for the elderly care frameworks around the world.

Presently, Germany hosts a three-pillar old age security model, wherein the main pillar is Deutsche Rentenversicherung, the German statutory pension insurance scheme. The second and third pillars of old-age security are occupational pension provisions - supplementary insurance financed by employers and/or employees - and supplementary individual provisions.

Furthermore, the German civil code Bürgerliches Gesetzbuch under its section 1601¹⁰ establishes an obligation on lineal relatives to maintain each other but such maintenance can only be granted in case the person does not have means to maintain himself. Section 1609 of the code lays down a priority list in case more than one person has to be maintained. As per the priority list, parents who cared for the child have to be given precedence over those who didn't.

Other than this, the Sozialgesetzbuch, the German Long Term Care Insurance law of 1994 through its book 11 weave a welfare net covering the cost of nursing care of the elderly and other costs like housing, healthcare, etc.¹¹

United Kingdom

In the United Kingdom, there's no filial duty legislation placing the burden of maintaining parents on children in general. Instead, the United Kingdom's legal framework for elderly care is centred around the public welfare legislation like the Care Act, 2014. With its variations in Scotland, Northern Ireland, and Wales, the Care Act 2014, applicable to all adults, establishes the duty of local authorities to assess the needs of individuals who may require such publicly funded care & support. Carrying out such assessments and designing personalised care plans is done as per sections 9 to 13 of the Act, keeping in mind the individual's well-being.

The Care Act 2014 works in tandem with the Health and Social Care Act 2012, which revamped the National Health Service (NHS). Established in 1948 NHS provides a tax-funded, universal, free at the point of delivery healthcare.

Beyond healthcare, the United Kingdom's foundation for elderly care is built upon a public pension system. As per the Pensions Act 2014, individuals with a minimum age of 66 and a minimum National Insurance Contribution of 10 years are eligible for a pension while for those with at least 35 years of National Insurance contribution, a flat-rate pension is provided.

Japan

Any discussion around elderly care would be incomplete without mentioning the example of Japan, the global pioneer in the field of elderly care. The roots of the Japanese model can be traced back to the 1963 Act on Social Welfare for the Elderly¹², which initially benefitted only low-income senior citizens without any family support. However, the scope was later on expanded and the welfare measure of intensive care homes for senior citizens requiring continuous medical attention was added.

After this, Japan never looked back and followed up with its toast of the town ten-year Gold Plan in 1989. This was a shift towards proactive planning, leaving behind the reactive anxiety. In 2000, the Japanese introduced their long-term care insurance system, which gave elderly citizens the autonomy to choose the care services as per their own needs. These services include home visits, day-care, short stay services, rental of assistive devices, and institution-based care. The scheme has a

¹⁰ Bürgerliches Gesetzbuch [BGB] [Civil Code], § 1601, https://www.gesetze-im-internet.de/englisch_bgb/.

¹¹ Sozialgesetzbuch [SGB] [Social Code], https://www.gesetze-im-internet.de/sgeb_11/.

¹² Rōjin Fukushi Hō [Act on Social Welfare for the Elderly], Law No. 133 of 1963.

universal coverage as all citizens aged forty years or above have to pay premiums; and all those above 65 years can avail the benefits.

As far as the filial duty to maintain one's parents is concerned the Japanese civil code, 1896 lays down provision wherein parental care is centred around the idea of repayment of the sacrifices. Article 877¹³ of the code ensures adult children remain responsible for the filial support for their lineal ascendants. However, Japan, with the introduction of its social welfare legislations, de-emphasizes the familial caregiving model in favour of state-supported, technologically advanced care services. The use of care robots like Pepper and Paro for assistance and companionship shows how innovation can balance human dignity with human needs.

USA

In the United States before the 20th century, the concept of elderly care and welfare was centred largely around the family system. The family was supposed to provide, and in cases of extreme poverty, recourse was taken to the local "alms-houses". These poorhouses were locally administered public institutions providing housing and healthcare to those with limited financial means. These institutions were usually under resourced and overcrowded and served as the last resort for the older individuals.

The inadequacies of the system were brought to light by the Great Depression of 1929; lasting for a decade, this economic slowdown exposed the lack of a social safety net for the elderly. Employers were reluctant to keep the older workers, and as a result, many of them were thrown into poverty. It was in this backdrop that the then federal government stepped in with the Social Security Act, 1935¹⁴.

Initially designed for workers aged 65 or older, the act presently provides retirement benefits to those who are at least 62 years of age and have paid into the system for the last ten years or more¹⁵. This old-age insurance program works through payroll withholding under the Federal Insurance Contribution Act (FICA). The 1965 amendment, through the introduction of Medicare and Medicaid, added another dimension of health insurance to the Act. Of these two, Medicare is primarily focused on providing hospital care, medical services and prescription drugs to those aged 65 or above¹⁶, thereby supplying quality healthcare without losing one's fortune.

Other than the Social Security Act, the Administration on Aging (AoA) created under the Older American Act of 1965¹⁷ provides community-based services like home-delivered meals, transportation, care giver support etc¹⁸.

Though despite the existence of rarely enforced state-level filial laws, the United States does not usually impose legal duty on children to provide care for their parents, let alone maintain them. However, an exception to this was seen in *Health Care & Retirement Corp. v. Pittas*¹⁹ (2012), wherein Pennsylvania's superior court made an adult son liable for around \$93,000 of his mother's healthcare costs.

Indian Scenario

Amongst the most noteworthy legislative enactments dedicated to the welfare of the elderly in India stands *The Maintenance and Welfare of Parents and Senior Citizens Act, 2007*. This legislation was crafted to ensure that ageing individuals are not left destitute or neglected, particularly in an era where traditional family structures are undergoing rapid transformation. Drawing inspiration from

¹³ Mimpō [Civil Code], Law No. 89 of 1896.

¹⁴ Social Security Act, 42 U.S.C. §§ 301 et seq. (1935).

¹⁵ Jeffrey Brown et al., *Social Security and Financial Security at Older Ages*, 80 *SOC. SEC. BULL.* 1 (2020).

¹⁶ Judith Feder et al., *Long-Term Care in the United States: An Overview: A Complex System of Public and Private Funding Often Leaves Elderly Persons at Risk of Financial Catastrophe and Inadequate Care*, 19 *HEALTH AFF.* 40 (2000).

¹⁷ Older Americans Act, 42 U.S.C. §§ 3001–3058 (1965).

¹⁸ **Carroll L. Estes**, *The Aging Enterprise Revisited*, 33 *GERONTOLOGIST* 292 (1993).

¹⁹ **Health Care & Retirement Corp. v. Pittas**, 46 A.3d 719 (2012).

both India's own *Hindu Adoptions and Maintenance Act*²⁰ and other foreign legislations like Singapore's *Maintenance of Parents Act, 1995*, this law places a binding obligation on children and legal heirs to provide financial and emotional support to their elderly parents or senior citizens, as the case may be. Recognising the evolving socio-economic landscape, the Act was last amended in 2019, further reinforcing the commitment to uphold the dignity, security, and well-being of senior citizens across the nation.

The object of the act, which aligns perfectly with the constitutional scheme²¹ under Article 21, Article 41²² and Entry 23 and 24 of the Concurrent List dealing with the welfare of the senior citizens, has been discussed by various high courts in their judgments. For instance, Madhya Pradesh High Court in *Ganesh v. Indu Bai*²³ pointed that the Act was enacted principally to ameliorate the deprivation caused to the parents by the children. The object of this Act is to provide for more effective provisions for the maintenance of the welfare of parents and senior citizens guaranteed and recognised under the Constitution and for matters connected therewith or incidentally thereto.

In *Pachamma v. State of Karnataka*²⁴, Karnataka high court further simplified saying that the object and intent of the act is to provide for institutionalization of suitable mechanism for the protection of life and property of senior citizens. Simple, inexpensive and speedy procedure for the protection of the life and property of the senior citizens.

Section 2(h)²⁵ defines the term “senior citizens” as “senior citizen” means any person being a citizen of India, who has attained the age of sixty years or above. Furthermore, what is meant by Maintenance and welfare is defined under sections 2(b) and 2(k) of the Act. Section 2(b) includes within the purview of “maintenance” the provision of food, clothing, residence, and medical attendance and treatment.²⁶

Section 2k of the act defines the term “welfare” on similar lines and reads: “welfare” means provision for food, health care, recreation centres and other amenities necessary for the senior citizens.²⁷ These definitions unmistakably reflect the legislative intent to adopt an expansive and inclusive understanding of these term. The explicit enumeration of various elements such as food, healthcare, recreation, and other necessary amenities indicates that the legislature has sought to ensure that the concept of welfare is not restricted to mere subsistence or survival. Rather, it encompasses the broader objective of securing a life of dignity, comfort, and social participation for senior citizens. This liberal interpretation enables judicial and administrative authorities to read into the statute a wide range of supportive measures, thereby advancing the holistic well-being and quality of life of the elderly population.

It is pertinent to note that the *Maintenance and Welfare of Parents and Senior Citizens Act, 2007*, does not stand alone as the exclusive legal remedy for securing maintenance for parents. Long before the conception of this Act, the Indian legal framework had already recognised the obligation of children to care for their parents. Statutory provisions such as Section 144 of the *Bhartiya Nagarik Suraksha Sanghita, 2023* (hereinafter BNSS), and personal laws—most notably the *Hindu Adoptions and Maintenance Act, 1956*—have, for decades, if not centuries, in spirit, enshrined the duty of filial support. The 2007 Act, thus, is not a beginning, but rather a reiteration and strengthening of a longstanding moral and legal tradition.

²⁰ The Hindu Adoptions and Maintenance Act, 1956.

²¹ Farrah Ahmed & Tarunabh Khaitan, *Constitutional Avoidance in Social Rights Adjudication*, 35 *OXFORD J. LEGAL STUD.* 607 (2015), <http://www.jstor.org/stable/24562980>.

²² India Const. art. 41.

²³ *Ganesh v. Indu Bai*, 2022 SCC OnLine MP 786.

²⁴ *Pachamma v. State of Karnataka*, 2016 SCC OnLine Kar 8418.

²⁵ The Maintenance and Welfare of Parents and Senior Citizens Act, 2007, §.2(h).

²⁶ The Maintenance and Welfare of Parents and Senior Citizens Act, 2007, §.2(b).

²⁷ The Maintenance and Welfare of Parents and Senior Citizens Act, 2007, §.2(k).

But it was because of the inherent defects like long procedural delays, etc, that these provisions had which gave birth to a legislation like the Maintenance and Welfare of Parents and Senior Citizens Act, 2007. Another reason why legislation like this came into the picture is that provisions like section 144 of BNSS²⁸(Section 125 of the erstwhile CrPC,1973²⁹), though secular, catered only to the problem of maintenance to the parents and not senior citizens per se. In this regard, the statute is commendable as it not only extends the benefits to the ageing parents but also to the childless senior citizens.

The Act sets a gold standard by adhering to the post-*S.P. Gupta*³⁰ trend of a liberalised locus standi rule. Section 5 of the legislation, in cases where senior citizens or parents are incapable of filing for maintenance themselves, empowers civil society organisations or any other person to file an application on their behalf. Furthermore, the tribunal is vested with the authority to take *suo motu* cognisance, ensuring proactive intervention in matters of elderly welfare.

The application for maintenance filed under section 5 of the Act has to be disposed of within a period of ninety days from the date of the service of notice. However, in exceptional circumstances and with the reasons recorded in writing, the tribunal is allowed an extension of thirty days. Section 8 of the Act lays down that the tribunal so constituted has to follow a summary procedure in holding any inquiry vis-à-vis the amount of maintenance. What is meant by the term “summary” was discussed by Madhya Pradesh High Court in *Sunil v. Competent Authority and Sub Divisional Officer*, wherein the court opined that the word “summary” implies a short and quick procedure instead of or as an alternative to the more elaborate procedure ordinarily adopted or prescribed for deciding a case.³¹

As far as the concept of graceful ageing is concerned it is neither possible nor desirable to put parameters around it and cannot make financial maintenance the only aspect to be considered, one has to look beyond it and consider other equally, if not more vital, aspects like the assurance of a safe and secure shelter. The Supreme Court of India, back in 1981 in *Francis Coralie Mullin v. State (UT of Delhi)*³², acknowledged that the Right to life guaranteed under Article 21 of the constitution is no hollow provision and includes within its purview right to live with dignity which, inter alia, includes nutrition, clothing and shelter. Similarly in *Shantistar Builders Case* the Supreme Court called right to shelter as a guarantee of any civilised society³³.

Section 19 of the Maintenance and Welfare of Parents and Senior Citizens Act, 2007, provides for the establishment of old age homes, requiring the state government to set up at least one old age home in every district of the state. However, since the term used is “may”, the provision does not in any way make it obligatory for the government to comply. The provision provides that a minimum of one fifty “indigent” senior citizens having no sufficient means are to be sheltered in such homes.

It has to be mentioned here that the courts take a very pro-elderly approach in cases where the government tries to meddle with the rights of the senior citizens living in these old age facilities. For instance, In *Kisan Seva Sansthan v. State of Uttar Pradesh*, when the state government sought permission to shift forty seven inmates of an old age home to another facility on the ground that the facility was not upto the standards (room size was 7.43 sq. metres against the required 7.5 sq. metres) mentioned in state government rules the high court cancelled the displacement of the inmates on the ground that such revocation of an earlier signed approval should only be allowed if the elderly residing there do not perceive it as a loss of or violation of their fundamental right to live with dignity. The court said it has to be ascertained if the action of revocation of approval would

²⁸ The Bhartiya Nagrik Suraksha Sanghita, 2023, §. 144.

²⁹ The Code of Criminal Procedure, 1973, §. 125.

³⁰ *S.P. Gupta v. Union of India*, 1981 Supp SCC 87.

³¹ *Sunil v. Competent Authority and Sub Divisional Officer*, 2022 SCC OnLine MP 1781.

³² *Francis Coralie Mullin v. Administrator, Union Territory of Delhi*, (1981) 1 SCC 608.

³³ *Shantistar Builders v. Narayan Khimalal Totame*, (1990) 1 SCC 520.

negatively affect the inmates for whose benefit such facility was set up in the first place and if the answer is yes the same cannot be done especially since it was the government itself that granted the approval and must have done so only if the facility met the criteria required.³⁴

However, the problem here is that, since the provision is non-obligatory in nature it's not yet known as to how many old age homes are functional as of this writing. As a matter of fact, the Supreme Court in *Ashwani Kumar v. Union of India*, directed the central government to clear the air and file the status report mentioning the number of old age homes set up under section 19 but still the ledgers lie quite.³⁵

Similar to section 19, the Scheme of Integrated Programme for Senior Citizens (IPSRc)³⁶, which is one of the four sub-schemes under the 2020 National Action Plan for the Welfare of Senior Citizens (NAPSRc), also envisions the establishment of age homes for senior citizens.

In the waning years of one's life, one thing inevitable is the ailments knocking on one's door, constantly, as if your body is the place you had merely rented and these knocks serves as a daily reminder that your time might just be around the corner. Whenever the topic of graceful ageing is brought to the table, a can of worms opens up, and quality healthcare is, perhaps, the biggest of them all.

A LASI report shows the ground reality; On being asked, "How is your health in general? Is it good, moderate, or poor?", it has to be mentioned that only 29.4% of the responding senior citizens residing in rural areas and 33.7% of those residing in urban areas responded with "good." The percentage drops further when considering living arrangements — only 24% of senior citizens living alone rated their health as "good."³⁷

In this context, section 20 offers relief, albeit just a mild one. The state government, as per the sub-section (1)³⁸, has to compulsorily provide beds to the senior citizens in government hospitals or hospitals funded fully/partially by the government. However, the phrase "as far as possible" acts as a limiting clause within the provision and therefore dilutes the mandate.

Other than section 20, programs like the National Program for Healthcare of elderly, 2011 and Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) also tackles the issue of geriatric well-being. The recent extension of health insurance coverage to the senior citizens aged seventy or above is step affirming the state's positive obligations under Article 21 of the Constitution and if implemented successfully it could bridge the long standing gap in the realm of geriatric wellbeing ensuring dignified ageing doesn't remain a castle built in the air.

Issues

A glaring shortcoming of this legislation lies in its uneven approach to dependency. While a parent, upon proving financial insufficiency, is granted the right to maintenance regardless of age, the same safeguard is not extended to a childless individual, who, in some cases, may be battling even greater hardship and destitution. This stark disparity underscores an oversight in the law, leaving a vulnerable segment of society without the protection it so desperately needs. Attention here has to be further paid to the fact that many of such childless individuals are burdened with medical deformities, and as a result, find themselves excluded from the institution of marriage. Stripped of traditional familial support, they are left without care in their most vulnerable years and, therefore such an oversight further pushes them to the periphery of the society.

³⁴ *Kisan Seva Sansthan v. State of U.P.*, 2021 SCC OnLine All 1097.

³⁵ *Ashwani Kumar v. Union of India*, (2019) 2 SCC 636.

³⁶ Ministry of Social Justice & Empowerment, *Integrated Programme For Senior Citizens* (Revised on April 1, 2018).

³⁷ International Institute for Population Sciences et al., *Longitudinal Ageing Study in India (LASI), Wave 1, 2017–18: India Report* (2020),

https://iipsindia.ac.in/sites/default/files/LASI_India_Report_2020_compressed.pdf.

³⁸ The Maintenance and Welfare of Parents and Senior Citizens Act, 2007, §.20(1).

Furthermore, section 9 of the act which talks about order for maintenance, lacks prudence and is not an across-the-spectrum solution, as it puts a ceiling on the maximum maintenance that can be ordered under the legislation. Using the phraseology “shall not exceed ten thousand rupees per month”, the legislation inadvertently rules out the question of securing a better maintenance amount, even and especially in the scenarios where the income capacity is high.

Section 17 of the act³⁹ is whole another ballgame, as it strips off both the parties of their right to legal representation before the tribunal/appellate tribunal. Although the intent behind the provision can be inferred to be the speedy redressal of maintenance applications, making the process less cumbersome and time-consuming, it also aims to cut down costs. The tribunals are supposed to work in a time bound manner by following summary procedure but such a provision in itself is problematic as it goes against the section 30 of the Advocates Act, 1961 which grants advocates whose names are entered on the state roll, the right to practise law before courts, tribunals, and other authorities.

The situation puts one in a bind not only because it impinges upon an advocate’s right to practice but also because the Act extends far beyond the mere provision of maintenance for the elderly and probes into far more intricate legal questions concerning property—matters that demand the exercise of legal acumen and cannot be entrusted solely to NGOs. Unlike advocates, who are bound by the professional and ethical oversight of the Bar Council, NGOs, owing to their lack of proper legal understanding, cannot properly adduce evidence and cannot be held to the same standard of accountability, thereby raising significant concerns about the procedural integrity.

This issue was raised in the landmark case of *Paramjit Kumar Saroya v. Union of India*⁴⁰, wherein the Punjab and Haryana High Court dealt with the conflict between section 17 of the Senior Citizens Act and section 30 of the Advocates Act and observed that:

“we are thus of the view that the decision vide section 30 of the Advocates Act has become law on a posterior date to Section 17 of the said Act which is sufficient for us to conclude that there cannot be an absolute bar to the assistance by legal practitioners to a Tribunal or the Appellate Tribunal despite the “notwithstanding” clause. Both enactments are Central enactments. While the said Act was being enacted, the absence of Section 30 of the Advocates Act was known. Not having conferred that right under Section 30 of the Advocates Act on the legal practitioner, the Parliament in its wisdom had found no reasons to give such rights under Section 17 of the said Act. However, the situation has subsequently changed on account of Section 30 of the Advocates Act having come into force. The right conferred under Section 30, subject to the provisions of the Advocates Act, is on every advocate so far his name is entered in the State roll to practise “throughout the territory to which this Act extends”. Such right is qua all Courts including the Supreme Court. Such right is also before any Tribunal or person “legally authorised to take evidence”. Thus, if a Tribunal is legally authorised to take evidence, there is a right for the advocate to practise before the Tribunal. The Tribunal has the right to take evidence. That being the status of the Tribunal, there has been intrinsic right in the advocate to practise before such a Tribunal in view of Section 30 of the Advocates Act which cannot be taken away”

Even the Delhi High Court, in *Pawan Reley v. Union of India*⁴¹, echoed a similar judicial sentiment, reaffirming the right of legal practitioners to represent parties before Maintenance Tribunals. The court observed that Section 17 of the relevant statute should not be construed as an impediment to legal representation, particularly where the complexities of maintenance disputes necessitate professional legal acumen.

The court in *Paramjit Saroya* tackled another hard-to-miss issue that the act embodies what one may call a legislative oversight on the part of the drafters of the act. Subsection (1) of section

³⁹ The Maintenance and Welfare of Parents and Senior Citizens Act, 2007, §.17.

⁴⁰ *Paramjit Kumar Saroya v. Union of India*, 2014 SCC OnLine P&H 10864.

⁴¹ *Pawan Reley v. Union of India*, (2022) 6 HCC (Del) 179.

16⁴², as it appears on a plain reading, grants the right to appeal against the order of the tribunal only to one set of parties, i.e. the senior citizen or the parent, as the case may be. Seemingly, the bare reading of the provision strips off the other party, to wit, the maintaining party, from the right to appeal in the appellate tribunal against the order for maintenance passed by the Tribunal under section 9 of the Act. Another ambiguity is created in situations wherein both the parties are aggrieved by the order of the tribunal, one on the ground that the maintenance granted is meagre and the other party on the ground that it's impossible for them to maintain as it is beyond their economic capacity. In such a situation, while the senior citizen would prefer to appeal under section 16 to the appellate tribunal, the other party, to wit, the maintaining party, would directly approach the High Court as they apparently are left with no other recourse. This would give rise to two parallel proceedings regarding the same order in two different forums, and the High Court, following the rule of hierarchy, would ultimately ask the appellate tribunal to go ahead and decide the question raised in the appeal. Therefore, practically in such scenarios the procedure supplies the right that the statute strips one of. And hence arises the question, why not the statute grant the right in the first place.

The court, dealt with this issue, by referring to the case of *N. Kannadasan v. Ajoy Khose*⁴³, wherein the principle of purposive interpretation was discussed and opinion of Justice Krishna Iyer in *Carew and Co. Ltd. v. Union of India* was quoted, "*There is no surer way to misread a document than to read it literally.*"

Speaking the language of Lord Denning, the court remarked that expecting every provision to be drafted with divine prescience and perfect clarity is pointless, and there exists no perfect solution as far as the interpretation of a statute is concerned. The court while calling into action both the rules of purposive interpretation and *casus omissus*⁴⁴, concluded that the Parliamentary discussions on the other provisions of the said Act do not convey its intention to differentiate and the only logical inference which can be drawn is that both the parties have right to appeal..

Though the majority of High courts follow the same judicial wisdom, the issue arises because there are a certain few that do not. For instance, Madras High Court in *K. Raju v. Union of India & Ors*⁴⁵ while conferring the right to appeal on senior citizen/parent observed that it is for the legislature to decide as to what class of people it intends to grant a right to appeal to and what conditions they need to fulfil to exercise such right and courts cannot twist a perfectly clear provision to grant right to appeal which the legislation in its simple language does not permit.

Similarly, the Karnataka High Court in *K. Lokesh v. The Bangalore District Maintenance And Welfare Of Parents And Senior Citizens Appellate Tribunal And Special Deputy Commissioner & Others*⁴⁶, held that the only plausible interpretation of Section 16 of the act is that the right to prefer appeal against the order of the tribunal is vested solely in the senior citizen/ parent and not in any other individual including the Children. The court reached this conclusion by drawing inspiration from the statement of object and reasons of the Act, asserting how the act was brought into effect for not just the welfare of a class of senior citizens but also to provide speedy and immediate relief to such elderly.

Therefore, one cannot help but notice a sharp divergence of views vis-à-vis various high courts on an issue as vital as the right to prefer appeal.

The legislation, by virtue of sub section (2) of section 8, confers the powers of a civil court upon the tribunal, like taking the evidence on oath, enforcing the attendance of the witnesses or compelling the production of relevant material. The issue arises as the presiding officer of such a tribunal has to be an administrative officer and not a legal officer per se. Sub section (2) of section 7 points that the tribunal has

⁴² The Maintenance and Welfare of Parents and Senior Citizens Act, 2007, §.16(1).

⁴³ *N. Kannadasan v. Ajoy Khose*, (2009) 7 SCC 1.

⁴⁴ *Board of Muslim Wakfs, Rajasthan v. Radha Kishan*, (1979) 2 SCC 468.

⁴⁵ *K. Raju v. Union of India*, 2021 SCC OnLine Mad 746.

⁴⁶ *K. Lokesh v. The Bangalore District Maintenance And Welfare Of Parents And Senior Citizens Appellate Tribunal And Special Deputy Commissioner & Others* 2025 LiveLaw (Kar) 1.

to be presided over by an officer not below the rank of the Sub-Divisional Officer of the state. Now, while on paper there exists no issue, the problem arises when such Sub-Divisional Officers actually discharges the duties like a civil-court. With limited understanding of law and its procedures, it becomes a problem for him to grasp the technicalities. While the application for maintenance doesn't present mind-boggling legal issues in front of him but other more complex issues, like the issues related to shared household actually requires him to possess certain legal acumen.

It has to be taken into account here that when Supreme Court solved the tussle between section 17 of this maintenance act and section 30 of the advocates act; the court actually considered that barring maintenance other issues that can be raised under this act requires professional legal discernment. Now, curiously, one would like to point that if the person raising the issue in front of the tribunal is expected to have a certain legal background, should not the presiding officer, acting as the tribunal and entrusted with the adjudication of the issue, have comparable legal expertise if not higher?

Even the Madras High court in *M. Venugopal v. District Magistrate-cum-District Collector*⁴⁷, pointed out this issue that these legally untrained officers cannot in one's right mind be expected to preside over the tribunals/ Appellate tribunal competently and suggested the government to appoint practising advocates with certain experience or retired judges to serve as the officers presiding the court.

Section 20, which intends to provide medical support to the senior citizens embeds within it the phraseology "as far as possible" under section 20(1). This, on closer scrutiny, directs one's attention to the fact that such diction, instead of making the provision pliable, actually creates a loophole, an escape hatch through which duty may slip away under the guise of practical limitations. Here, the law in itself is providing an implicit excuse for non-compliance, making the provision less of a protective shield and risks becoming more of a hollow assurance.

Wave 1 of the Longitudinal Ageing Study in India (LASI), which covered a sample panel of 31,464 people aged 60 and above, in its 2020 survey report, showed that only 11.7 per cent of the elderly answered positively when asked if they ever heard about the Act. The awareness of the act was almost, if not fully, absent amongst elderly women of states like Punjab (1%), Nagaland (1%), and Jharkhand (2%). Such low levels of awareness seem stranger than fiction, and clearly, the measures talked about under section 21 of the MWP Act are failing to yield results.

As per a 2022 press release of PIB, only 20,000 cases have been settled so far under the Maintenance and Welfare of Parents and Senior Citizens Act, 2007⁴⁸. Furthermore, even for a small number of applications so filed under the MWP Act, there exists the issue of delay in the disposal of appeals. Though, sub section (4) of section 5 mentions that application for maintenance and expenses incurred in proceeding shall be adjudicated within a stipulated period of ninety days from the date the notice is served and a further period of sixty days is stipulated under section 16 for appeals by following a short and quick summary procedure⁴⁹. Yet it's the provision like condonation of delay on showing sufficient cause and further appeals to the High Court and Supreme Court that delays the case of the senior citizens. With such long pendency of cases, one cannot expect the higher courts to act in a time-bound manner, and this is where the issue lies.

Recommendations

A great step would be to bifurcate the class "senior citizens" and to introduce another category of super senior citizens. Such bifurcation is necessary as there exists a yawning chasm between the urgency of medical help that is needed by a sixty-year-old and that needed by a ninety-year-old. As age advances, the human body gradually relinquishes its resistance, rendering itself increasingly susceptible to diseases, and such susceptibility increases manifold in the later years of life. The global health estimates illustrate this point beautifully, showing us how the DALY rate increases manifolds as a sixty-year-old enters the bracket 80-84 years of age. They say one size doesn't fit all, and the

⁴⁷ *M. Venugopal v. District Magistrate-cum-District Collector*, 2014 SCC OnLine Mad 5642.

⁴⁸ <https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=1813740>.

⁴⁹ *H.S. Subramanya v. H.S. Lakshmi*, 2014 SCC OnLine Kar 10096.

phrase perfectly aligns with the problem at hand. By creating a separate legal and policy recognition for “super senior citizens”, the state can tailor support mechanisms catering specifically to their heightened vulnerabilities, be it through greater healthcare subsidies, priority access to medical care or more profound maintenance mechanisms. This further categorization, which can be done by amendment of section 2 of the MWP Act, would also help policymakers allocate resources more judiciously ensuring that the frailest are not left behind in a one size fits all welfare system.

DALYs rate per 100,000 population⁵⁰

SN	Leading cause of DALYs	Age Group (in years)					
		60-64	65-69	70-74	75-79	80-84	85 & above
1.	Ishemic Heart Disease	11076.98	13569.86	16474.63	19443.18	24934.16	23773.64
2.	Chronic Obstructive Pulmonary Disease	6106.4	9671.94	14718.04	18820.21	27303	24022.85
3.	Stroke	5811.64	7800.64	9114.14	10597.82	10708.75	10586.64
4.	Diarrhoeal Diseases	2637.42	4056.42	6694.12	8951.9	14723.64	17942.45
5.	Diabetes Mellitus	4121.17	4899.1	5496.59	6399.42	7263.73	6348.5
6.	Lower Respiratory Infections	1638.76	2550.77	3789.21	4665.7	6591.35	6388.77
7.	Alzheimer's & Other Dementias	339.18	657.34	1289.25	2424.26	5853.98	11288

Furthermore, it is proposed that while adjudicating the maintenance application, the tribunal, constituted under section 7 of the Act, adopt what the author would like to coin as the Silver First Doctrine. This principle advocates for a descending priority model in the disposal of maintenance applications, wherein applications brought by the eldest of the applicants are heard and decided before those brought by relatively younger senior citizens. The justification behind such a proposition is anchored in the harsh truth that time, for the eldest among us, is a luxury often unaffordable. The statutory adoption of such an age-sensitive hierarchy would reflect a rational approach, aligning the procedure with the urgency faced. The tribunals must, therefore, be guided by a statutory framework where age serves not merely as a statistical detail but as a cogent factor for accelerated relief.

Though pension schemes like the Indira Gandhi National Old Age Pension Scheme (IGNOAPS)⁵¹ exist, they are little more than a Band-Aid on a bullet wound. The eligibility criterion for this scheme in particular is that one must be a senior citizen living below poverty line to receive a halfpence amount of rupees two hundred monthly up to the age of 79 years and thereafter an amount of rupees five hundred. These amounts are released by the central government, and after that the state government are required to provide top-ups over and above the central amount. These top-ups range anywhere from Rupees fifty to three thousand per month per beneficiary. However, usually these state amounts are on the lower side of the spectrum, not making a difference noticeable enough to help the elderly live a life of dignity. Such pension schemes make a mockery of prevailing inflation rates. If the government, back in 2007, was able to afford a monthly payment of rupees two hundred, which was never adequate to begin with, it should, logically, with a proliferated treasury, now be able to grant a substantially higher amount, taking the inflation rates into account.

How meagre this pension amount is can be understood from the fact that in 2021 the daily average expenditure on a prisoner in India was rupees 104 which translates to rupees 3120 per

⁵⁰ World Health Organization, *Global Health Estimates 2019: Deaths by Cause, Age, Sex, by Country and by Region, 2000–2019*, <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/global-health-estimates-leading-causes-of-dalys> (2020).

⁵¹ Ministry of Rural Development, Indira Gandhi National Old Age Pension Scheme (IGNOAPS), https://web.umang.gov.in/landing/scheme/detail/nsap-indira-gandhi-national-old-age-pension-scheme_nsap-ignoaps.html.

month⁵². Now this should be looked at in the light that primarily prison system was designed to punish individuals for their wrongdoings, they are put behind the bars because of the universally acknowledged premise that they are not deemed fit to live with the society freely; the question is what crime has the elderly committed to deserve such a circus act?

It is therefore recommended that a realistic pension be paid that should at least be half the minimum wage; only then should such schemes be, rightfully, called welfare schemes.

Though the Act⁵³ came to life in 2007, its existence remains largely unknown to the general public, let alone the senior citizens it seeks to benefit. A welfare legislation like the Senior Citizens Act would be of marginal utility if its enactment and notification are not accompanied by proper awareness campaigns. With an awareness rate as low as 11.7 percent⁵⁴, the legislative benefits remain largely confined to the statute books and do not reach the senior citizens the legislation aims to serve. To eliminate this fly in the ointment, the government needs to undertake full-fledged pan-India awareness campaigns and drives. Although Section 21 places the onus of publicizing the provisions of the act on the state government, the Centre should take the initiative to introduce a pan-India campaign, and state governments should then make their own adaptations.

Conclusion

They say time and tide wait for no one, and India moves steadily towards a future where the country will have to collectively answer certain questions—questions that will look us squarely in the eye and demand not just on-paper policy responses, but actual implementational strategies. Irrespective of being a timely and well-intentioned legislative measure, the *Maintenance and Welfare of Parents and Senior Citizens Act*, due to poor implementation and limited public awareness, remains an unfinished symphony. Nearly two decades after its enactment, the Act continues to wander unheard through the corridors of the general public, and its potential remains unrealised.

Therefore, to remedy this, there exists an urgent need for state governments to adopt proactive mechanisms, such as targeted mass media campaigns, to raise awareness among both potential beneficiaries as well as the public at large. The success of past public awareness initiatives like Jaago Grahak Jaago and Do Boond Zindagi Ki brings out the efficacy of such tools.

A dedicated maintenance law is certainly a step in the right direction. What would make it even better is if the legislators did away with the maximum amount ceiling and, instead, introduced a minimum standard amount to ensure that senior citizens can maintain their dignity. Such an evolution in substance would open the doors for more elderly individuals to take recourse to the Act, truly enabling it to serve its intended purpose: safeguarding the welfare and well-being of India's senior citizens.

Furthermore, the AB-PMJAY health insurance coverage for people above 70 is a welcome step, and it should soon bring within its purview the left-out elderly bracket of those aged 60 to 70 years. With these measures, the country is already on the right path of geriatric care and well-being. What it will need in the future is a constant nudge to ensure it does not lose its track. A dedicated National commission for elderly welfare or an ombudsman for the rights of senior citizens' could be a good step in this direction as it could provide continuous institutional oversight giving teeth to the constitutional promise under Article 41 of the Indian constitution.

Ultimately, the real test of a nation's moral and constitutional character lies more in how it supports the vulnerable and less in how it advances the mighty. Graceful ageing doesn't only mean having proper maintenance and welfare laws in place, but it's a nation's unflinching commitment towards the welfare of its elderly ensuring those who once nurtured its roots and not left to fend for themselves.



⁵² Commonwealth Human Rights Initiative, *Ten Things You Should Know About Indian Prisons* (2021), <https://www.indiaspend.com/h-library/chri-psi-2021finaldocx.pdf>.

⁵³ The Maintenance and Welfare of Parents and Senior Citizens Act, 2007

⁵⁴ International Institute for Population Sciences, *supra* note 37.

Gandhi & his Symbolic Presence in Indian Freedom Struggle

Vinay Kumar Hind*

The power of symbols, signs, and semiotics in shaping cultural narratives and mobilizing collective action is a universal phenomenon that transcends linguistic and cultural boundaries. In traditional societies, these visual representations serve as potent tools for disseminating ideas, values, and worldviews, resonating deeply with people's emotions and shared experiences. India's rich cultural heritage is replete with examples of symbols that have galvanized mass consciousness, tapping into primordial sentiments, atavistic values, and deeply ingrained cultural behaviours.

The Role of Symbols in Indian Society:

Symbols have played a pivotal role in India's history, fostering a sense of unity and shared identity among diverse populations. From ancient times to the present day, these symbols continue to evoke strong emotions, devotion, and a sense of connection to long-cherished legacies. Some iconic symbols that exemplify this phenomenon include:

- Arjun's Conch (Sankha): Representing the call to action and the beginning of a righteous battle, the conch shell is an enduring symbol of courage and duty.
- Ram's Footwear (Paduka): Embodying the ideals of righteousness and leadership, Ram's footwear is revered as a symbol of his divine mission and the pursuit of dharma.
- Ashok's Ashoka Chakra: This iconic symbol of the Indian national flag represents the eternal wheel of law and justice, reflecting the principles of Asoka's reign.
- Buddha's Stupa: The stupa is a powerful symbol of Buddhist teachings, representing the path to enlightenment and the interconnectedness of all beings.

The Enduring Power of Symbols:

These symbols continue to inspire devotion, unity, and a sense of shared purpose among people, transcending time and cultural boundaries. They serve as a bridge between India's rich past and its vibrant present, reminding us of the country's enduring legacy and cultural heritage. By tapping into the collective unconscious, these symbols evoke powerful emotions and motivate people to work towards a common goal.

Mr. Gandhi, a pioneering figure in Indian nationalism, masterfully leveraged symbolic acts to mobilize the masses and challenge the British Empire's dominance. Drawing from India's rich cultural and mythological heritage, Gandhi employed non-violent resistance as a potent tool to unite people across diverse backgrounds and regions. Mahatma Gandhi, a devout Hindu, drew profound inspiration from ancient Vedic scriptures and philosophies. However, his respect for diverse religious traditions was evident in his appreciation for the symbolic significance of other faiths. As a champion of the rights of ordinary people, Gandhi opted for simple yet powerful symbols to convey his ideas and mobilize the masses.

Gandhi's Use of Symbols:-

Gandhi's leadership was characterized by his ability to tap into the collective consciousness of the people. He employed a range of symbols to elicit popular support and galvanize mass action. Some notable examples include:

1. The Spinning Wheel (Charkha): Representing self-sufficiency and economic independence, the charkha became a potent symbol of India's struggle for freedom.
2. The Salt March: Gandhi's 1930 march to produce salt in defiance of British laws was a powerful symbol of resistance against colonial rule.

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3. Khadi and Swadeshi: Gandhi's promotion of homespun cloth and indigenous products was a symbol of self-reliance and resistance against British economic exploitation.

Mass Mobilization through Symbols :

Gandhi's use of symbols was not limited to specific movements or campaigns he consistently employed symbolic acts to convey his ideas and inspire the masses. His approach was characterized by:

1. Simple yet powerful messaging: Gandhi's symbols were easy to understand, yet conveyed complex ideas and emotions.
2. Emotional resonance: Gandhi's symbols tapped into the collective emotions of the people, inspiring a sense of unity and purpose. For instance wearing dhoti as part of regular attire.
3. Inclusive and accessible: Gandhi's use of symbols made his message accessible to people from diverse backgrounds, including those who were illiterate or marginalized.

Early Acts of Defiance:

One notable example of Gandhi's symbolic protest occurred in 1893, when he was just 24 years old. While traveling in South Africa, Gandhi was forcibly removed from a first-class compartment on a train due to his skin colour, sparking a lifelong commitment to fighting against racial and social injustice. This pivotal moment marked the beginning of Gandhi's crusade for the rights of the marginalized and oppressed.

Non-Violent Resistance: A Powerful Strategy:

Gandhi's experiences in South Africa informed his activism in India, where he applied non-violent resistance to great effect. His approach to challenging imperial power was rooted in non-violent resistance, which he termed "Satyagraha." This philosophy emphasized the power of truth, non-cooperation, and civil disobedience as a means to bring about social change. Gandhi's methods were revolutionary, as they:

1. Empowered the marginalized: By using non-violent resistance, Gandhi gave a voice to the oppressed and marginalized, amplifying their struggles and demands.
2. United diverse groups: Gandhi's message resonated with people from various backgrounds, fostering a sense of unity and shared purpose among Indians.
3. Challenged imperial dominance: Through non-violent means, Gandhi directly challenged the British Empire's authority, exposing the moral bankruptcy of colonial rule.

Legacy of Gandhi's Symbolic Resistance:

Gandhi's use of symbolic acts and non-violent resistance has inspired generations of activists and leaders worldwide. His legacy continues to influence social movements, from the American Civil Rights Movement to anti-apartheid struggles in South Africa. Gandhi's commitment to non-violence, truth, and social justice remains a powerful force for change, reminding us that even the most marginalized communities can challenge oppressive systems and demand their rights through peaceful means. His innovative use of symbols and semiotics has inspired generations of leaders and activists. His legacy continues to influence social movements worldwide, demonstrating the power of symbolic acts to mobilize people and bring about social change. By understanding Gandhi's approach to symbolic leadership, we can appreciate the enduring impact of his ideas and methods on modern politics and social activism.

Symbols, signs, and semiotics are integral to shaping cultural narratives and mobilizing collective action in Indian society. These elements not only reflect the country's rich and diverse cultural heritage but also adapt and evolve with changing socio-political contexts. The significance of symbols lies in their ability to convey complex meanings and emotions, often transcending language barriers and resonating deeply with people.

In India, symbols have played a crucial role in various movements and narratives. For instance, the tricolour national flag is a powerful symbol of unity and patriotism. Similarly, the lotus, associated with various deities and cultural motifs, has been adopted by political parties to signify growth and purity. The significance of these symbols can change over time, reflecting the dynamic nature of culture and society.

Adaptation of Symbols Over Time:

Symbols often acquire new meanings based on the prevailing socio-political context. For example, *The Swastika*: Originally a symbol of auspiciousness and prosperity in ancient Indian traditions, it was co-opted by Nazi Germany in the 20th century to represent their ideology. In India, despite its misuse in the past, the Swastika continues to be a sacred symbol in Hinduism, Buddhism, and Jainism.

- *The Peace Sign*: Emerging in the 1950s and 1960s as a symbol of nuclear disarmament, it became a broader emblem of peace and anti-war movements globally.

Latest Examples of Symbolism in India:

- Padma Awards: These civilian honours symbolize exceptional service and achievements in various fields, reflecting India's appreciation for its distinguished citizens.
- Asha Kiran: The smile on the faces of children in NGOs symbolizes hope and resilience.
- Digital India Logo: Represents India's push towards technology and innovation.

Recent Global Examples:

- *The Black Lives Matter Movement*: The raised fist symbolizes solidarity and resistance against racial injustice and police brutality.
- *The Dove*: Universally recognized as a symbol of peace, often used in various peace movements and protests worldwide.
- *The Recycling Symbol*: Represents global efforts towards sustainability and environmental conservation.

Conclusion:

In conclusion, symbols, signs, and semiotics play a vital role in shaping cultural narratives and mobilizing collective action in Indian society. By understanding the significance of these symbols and their enduring power, we can appreciate the richness and diversity of India's cultural heritage and its continued relevance in modern times.

In today's digital age, symbols and signs are increasingly used in social media and digital communication to convey messages quickly and effectively. Emoji's, hashtags, and memes have become powerful tools for expression and mobilization, reflecting the evolving nature of semiotics.

Understanding the role of symbols and semiotics in shaping cultural narratives allows us to appreciate the depth and complexity of human communication. By recognizing how symbols adapt and acquire new meanings, we can better understand the dynamic interplay between culture, society, and history.

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India's Arctic Engagement: Balancing Economic Interests and Environmental Protection

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Abstract

The Arctic region has emerged as a critical zone of geopolitical, economic, and environmental significance due to rapid Climate Change and the consequent opening of new maritime routes and access to vast natural resources. This paper explores India's Arctic engagement, focusing on how it balances economic interests like energy security and trade with the need to protect the fragile Arctic environment. It analyses India's Arctic Policy, scientific research, and international cooperation efforts, highlighting challenges and opportunities in sustainable development. The study concludes with recommendations for India to strengthen its role as a responsible Arctic stakeholder amid growing geopolitical competition and environmental concerns.

Introduction

The Arctic is the northernmost region of the Earth encircling the North Pole. It is the area North of Arctic Circle, which is located at about 66°33' North latitude. This landscape is marked with thick icy seas, tundra plains and vast swathes of glaciers. It is the land where one can witness the unique phenomena of polar nights and midnight sun. But with rising temperatures, the serene, peaceful and inhospitable expanse of ice and snow is also transforming. The turbulence prevalent around the globe has entered this peaceful region as well. Climate Change has rapidly transformed the Arctic into a focal point of global geopolitical, economic, and environmental interest.

This transformation is primarily driven by Climate Change. Due to global warming the Arctic ice is melting at an accelerated pace resulting in emergence of a new Arctic. New maritime trade routes, resource extraction possibilities, ecological shifts are unfolding among rapid rise in temperature. These factors have transformed Arctic into a new and dynamic arena of geopolitical competition. Its significance has transcended the geographical boundaries of the eight Arctic states, drawing attention from non-Arctic nations such as India, which recognizes the strategic, scientific, and economic potential of the region.

India's engagement with the Arctic is multifaceted and reflects a growing awareness of the region's global importance. As a non-Arctic state and an observer member of the Arctic Council since 2013, India has articulated a comprehensive Arctic Policy in 2022, underscoring its commitment to scientific research, sustainable development, international cooperation, and strategic economic interests. The policy is structured around six pillars: Science and Research; Climate and Environmental Protection; Economic and Human Development; Transportation and Connectivity; Governance and International Cooperation; and National Capacity Building. Among these, the dual objectives of pursuing economic opportunities while ensuring environmental protection present a complex challenge that India must navigate prudently.

The Arctic region offers India considerable economic prospects, including access to hydrocarbons, minerals, and shorter shipping routes that can enhance India's global trade connectivity. However, these opportunities come with significant environmental risks, given the Arctic's fragile ecosystem and its critical role in regulating the global climate system. India's policy framework reflects a conscious effort to balance these competing priorities through sustainable development and scientific collaboration.

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This paper explores India's Arctic engagement, focusing on how India balances its economic interests with environmental protection. It examines India's Arctic policy framework, economic ambitions, environmental concerns, and the strategies employed to harmonize these dimensions. By analyzing India's role in the Arctic, this study contributes to a deeper understanding of sustainable development in one of the world's most dynamic and vulnerable regions.

India's Arctic Policy Framework

India's Arctic Policy, formally introduced in 2022, marks a significant milestone. It is the first comprehensive document that outlines India's vision, priorities, and strategic interests. The policy is organized around six key pillars that collectively guide India's multifaceted engagement in the Arctic.

The first pillar emphasizes the advancement of scientific knowledge about the Arctic environment. Indian scientific institutions, such as the National Centre for Polar and Ocean Research (NCPOR), have been actively involved in Arctic research for decades, focusing on Climate Change, glaciology, oceanography, and atmospheric studies. The policy stresses the importance of collaborative research, data sharing, and capacity building to enhance understanding of the Arctic's rapidly changing ecosystem and its global implications.

Closely linked to scientific research is the second pillar- Climate and Environmental Protection, which underscores India's commitment to environmental stewardship. The Arctic plays a crucial role in regulating the Earth's climate system, and its accelerated warming poses significant risks globally, including for India's own climate-sensitive regions such as the Himalayas. India's policy advocates sustainable development, pollution control, and active participation in international efforts to mitigate Climate Change impacts in the Arctic.

The third pillar- Economic and Human Development reflects India's interest in exploring economic opportunities in the Arctic, including resource extraction and sustainable development of Arctic communities. It acknowledges the potential of the Arctic's vast mineral and energy resources to contribute to India's energy security and industrial growth, while emphasizing the need to balance economic activities with environmental sustainability and respect for indigenous peoples.

The fourth pillar- Transportation and Connectivity focuses on the strategic importance of emerging Arctic shipping routes. Melting ice is opening shorter maritime corridors between Asia and Europe, which could significantly reduce transit times and costs for Indian trade. India aims to explore these routes and integrate them with existing transport corridors such as the International North-South Transport Corridor (INSTC), thereby enhancing its connectivity and global trade competitiveness.

The fifth pillar- governance and International cooperation recognizes the importance of multilateral engagement and adherence to international laws governing the Arctic. India, as an observer member of the Arctic Council, seeks to strengthen its diplomatic and scientific partnerships with Arctic and non-Arctic states to promote peaceful and sustainable development.

Finally, the sixth pillar- national capacity building addresses the need to develop India's human resources, institutional expertise, and technological capabilities related to Arctic affairs. This includes training in polar navigation, maritime insurance, and Arctic-specific scientific research, ensuring India is well-equipped to participate meaningfully in Arctic governance and economic activities.

Together, these pillars provide a holistic framework that balances India's scientific, economic, environmental, and strategic interests in the Arctic. The policy reflects India's ambition to be a responsible and proactive stakeholder in the region, promoting sustainable development while safeguarding fragile ecosystems.

Economic Interests in the Arctic for India

India's economic interests in the Arctic are driven by the region's vast untapped reserves of hydrocarbons and critical minerals, which are vital for India's growing energy and industrial demands. As the world's third-largest energy consumer, India imports approximately 83 percent of its oil and half of its natural gas, with natural gas currently constituting only about 6 percent of its

energy mix—a figure India aims to increase to 15 percent by 2030. The Arctic region, believed to hold over 40 percent of the world's undiscovered oil and gas reserves, offers India a promising avenue to diversify and secure its energy sources, thereby enhancing its energy security.

India's economic engagement in the Arctic is closely linked to its strategic partnership with Russia, which controls around 50-55 percent of the Arctic coastline and 80 percent of its oil and gas reserves. India has invested approximately US\$15 billion in Russian oil and gas projects, securing a foothold in the Arctic's energy sector. This collaboration extends beyond resource extraction to include cooperation on the Northern Sea Route (NSR), a shipping lane that significantly shortens maritime trade between Asia and Europe. India aims to integrate the NSR with existing corridors like the International North-South Transport Corridor (INSTC), which could reduce transit times and costs, boosting India's trade competitiveness.

Beyond hydrocarbons, the Arctic is rich in minerals such as copper, phosphorus, niobium, platinum group elements, and rare earth metals, all critical for India's technological and industrial growth. India seeks to collaborate with Arctic states to explore these resources sustainably, aligning with the United Nations Sustainable Development Goals. However, India's economic ambitions in the Arctic are tempered by environmental concerns, necessitating a balanced and sustainable approach to resource development.

So, India's Arctic economic interests encompass energy security, mineral resources, and enhanced maritime connectivity, all pursued through strategic partnerships and sustainable development frameworks.

Environmental Protection Concerns

The Arctic region is one of the most environmentally sensitive and rapidly changing areas on Earth. Due to global warming, the Arctic is experiencing temperature increases at more than twice the global average rate, leading to accelerated ice melt, rising sea levels, and significant disruptions to ecosystems. These changes have profound implications not only for the Arctic but also for global climate patterns, including India's own environment, particularly the fragile Himalayan ecosystem, which is closely linked to Arctic climatic processes.

India's Arctic Policy underscores the importance of environmental protection as a core pillar, reflecting the country's recognition of the Arctic's critical role in regulating the Earth's climate system. The melting of Arctic ice affects global ocean circulation and weather patterns, which in turn influence monsoon variability and water security in India. Consequently, India has a vested interest in supporting scientific research and international cooperation aimed at monitoring and mitigating the environmental impacts of Arctic warming.

India's scientific community has been actively involved in Arctic environmental research, contributing to studies on glaciology, atmospheric chemistry, and climate modeling. These efforts help improve understanding of the feedback loops between the Arctic and the Himalayan region, aiding in better climate prediction and adaptation strategies for India.

However, the environmental fragility of the Arctic poses significant challenges to economic activities such as resource extraction and increased shipping traffic. These activities risk habitat destruction, pollution, and disturbance to indigenous communities. India's policy stresses sustainable development and adherence to international environmental protocols to minimize ecological damage.

India's commitment to environmental protection in the Arctic aligns with its broader climate goals under the Paris Agreement and Sustainable Development Goals. By balancing economic interests with environmental stewardship, India aims to contribute responsibly to the preservation of the Arctic ecosystem while pursuing its strategic objectives.

Balancing Economic Development and Environmental Protection

India's Arctic engagement is characterized by a delicate balancing act between pursuing economic opportunities and safeguarding the fragile Arctic environment. The region's vast reserves of hydrocarbons, minerals, and emerging shipping routes offer significant economic benefits that align with India's strategic goals of energy security, industrial growth, and enhanced global trade

connectivity. However, these economic ambitions must be tempered by the urgent need to protect the Arctic's unique and vulnerable ecosystem, which plays a vital role in regulating the global climate system.

India's Arctic Policy explicitly emphasizes sustainable development guided by the United Nations Sustainable Development Goals (SDGs). This approach calls for responsible exploitation of Arctic resources while minimizing environmental degradation. The policy advocates for robust scientific research to monitor environmental changes, assess impacts of economic activities, and develop technologies that reduce ecological footprints. For example, India supports the use of environmentally friendly ice-class vessels that comply with the International Maritime Organization's Polar Code to ensure safer and greener navigation along Arctic shipping routes.

International cooperation is another cornerstone of India's strategy to balance development and protection. As an observer in the Arctic Council, India engages with Arctic and non-Arctic states to promote governance frameworks that emphasize environmental protection, indigenous rights, and Climate Change mitigation. India's collaboration with Russia on the Northern Sea Route (NSR) exemplifies this balance: while the NSR offers a shorter, cost-effective shipping corridor that can reduce fuel consumption and emissions compared to traditional routes, it also requires stringent environmental safeguards, including icebreaker assistance and pollution control.

Despite these efforts, challenges remain. Increased shipping traffic and resource extraction risk habitat disruption, pollution, and accelerated Climate Change impacts. India's policy acknowledges these risks and stresses the importance of integrating environmental considerations into all economic activities. The development of national capacity in polar research, maritime expertise, and environmental monitoring is essential to ensure India can effectively contribute to sustainable Arctic governance.

Several initiatives and collaborations illustrate India's approach to balancing economic interests with environmental protection in the Arctic.

Scientific Research and Environmental Monitoring- India's National Centre for Polar and Ocean Research (NCPOR) has been at the forefront of Arctic scientific expeditions, studying atmospheric, glaciological, and oceanographic changes. For instance, the Himadri research station in Svalbard conducts year-round observations that contribute to understanding Arctic climate dynamics and their linkage to Indian monsoon variability. These studies inform India's climate adaptation strategies and underscore its commitment to environmental stewardship.

Northern Sea Route and the Chennai-Vladivostok Maritime Corridor (CVMC)-India's collaboration with Russia on the NSR and the CVMC project aims to establish a shorter, efficient trade route between India and northern Eurasia. The NSR reduces shipping distances by nearly 40-50% compared to the Suez Canal route, cutting transit times and fuel consumption, thus lowering carbon emissions. Russia's nuclear-powered icebreaker fleet ensures year-round navigability, enhancing the route's reliability. India's participation includes efforts to develop ice-class vessels and train maritime personnel to meet Polar Code standards, reflecting a commitment to environmentally responsible navigation.

Energy Cooperation-India's Oil and Natural Gas Corporation (ONGC) has invested in Russian Arctic energy projects, securing access to hydrocarbons critical for India's energy security. These investments are accompanied by environmental safeguards and adherence to international standards to mitigate ecological impacts.

International Forums and Agreements-India's observer status in the Arctic Council enables it to participate in discussions on sustainable development, environmental protection, and indigenous rights. India actively supports multilateral efforts to address Climate Change and promote responsible resource management in the Arctic.

These examples demonstrate India's evolving Arctic strategy, which integrates economic development with environmental protection through scientific research, international cooperation,

and capacity building. This balanced approach positions India as a responsible stakeholder in the Arctic's future.

Recommendations

To effectively balance economic interests with environmental protection in the Arctic, India must adopt a multi-pronged strategy that aligns with its Arctic Policy pillars and global sustainability commitments.

India should invest in advanced research infrastructure and foster international scientific collaborations focused on climate modeling, ecosystem monitoring, and sustainable resource extraction technologies. Enhanced scientific understanding will enable India to make informed policy decisions and minimize environmental risks.

India must engage Arctic indigenous communities through established governance mechanisms to ensure that development projects are socially inclusive and environmentally responsible. Transparent and ethical partnerships will promote sustainable economic growth while respecting indigenous rights.

India should continue building ice-class vessels and train maritime personnel to comply with the International Maritime Organization's Polar Code. This will facilitate safer, greener shipping along Arctic routes, reducing environmental impacts.

Active participation in the Arctic Council and other multilateral forums will enable India to influence international environmental governance and promote sustainable development standards.

India should enhance educational programs on Arctic affairs, including interdisciplinary studies on indigenous rights, environmental law, and polar science. Collaborations with Arctic academic institutions can foster knowledge exchange and prepare India's workforce for Arctic challenges.

Conclusion

India's Arctic engagement encapsulates a strategic effort to harness the region's economic potential while upholding environmental responsibilities. The Arctic's vast resources and emerging shipping routes offer India opportunities to enhance energy security, industrial growth, and global trade connectivity. Simultaneously, the region's fragile ecosystem and its pivotal role in global climate regulation demand a sustainable approach.

India's Arctic Policy provides a comprehensive framework integrating scientific research, environmental protection, economic development, connectivity, governance, and capacity building. Through collaborative research, responsible resource utilization, and adherence to international standards, India aims to contribute constructively to Arctic governance and sustainable development.

Balancing economic ambitions with environmental stewardship is challenging but achievable. By fostering international cooperation, respecting indigenous rights, investing in innovation, and strengthening institutional capacities, India can play a responsible and influential role in shaping the Arctic's future.

As Climate Change accelerates and the Arctic becomes increasingly accessible, India's proactive and balanced approach will be essential not only for its national interests but also for the global community's collective efforts to preserve this unique and vital region.

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Mesolithic in the Vindhyas: Multidisciplinary Studies in the Belan Valley and Kaimur

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Abstract:

This paper reconstructs the Mesolithic culture of the Vindhyan region through a multidisciplinary approach, integrating archaeology, geology, palaeobotany, zooarchaeology, and more. Focused on the Belan and Kaimur regions, it examines settlement patterns, lithic industries, subsistence strategies, burials, etc. Excavations at key sites like Chopani Mando and Lekhahia reveal a cultural continuum from the Upper Palaeolithic to Neolithic, highlighting gradual transitions in technology, lifestyle, and environment during the early Holocene.

North-Central India covering the northern Vindhyas and southern central Ganga plain has been one of the regions of India which has been intensively investigated by the team of archaeologists and associated scientists having bearing on multidisciplinary and multidirectional approach. This area, extending from Ghaghara in the north to Son in the south and Chandrababha in the east to Paisvini in the west, primarily was investigated by the team of archaeologists of Allahabad University headed by G.R. Sharma. The region is of immense geographical and cultural interest comprising as it does two contrasting ecological environments – the rocky plateau of the Vindhyas in the south and the flat alluvial plain of the Ganga in the north.

The Vindhyas has a long history of research started as early as 1867-68 by A.C.L. Carlleyle (1883) of the Archaeological Survey of India (Brown 1889, Smith 1906). Other early researchers include J. Cockburn (1883a, 1883b, 1899) and Manoranjan Ghosh (1932).

A good number of sites were located by a well-planned and systematic research in the Belan valley and Kaimur by University of Allahabad (G.R. Sharma 1965, 1973, 1980: 88-115). Excavated sites of the area include Morahana Pahar (Varma 1964, 1965, 1977: 244-47, 1986a), Baghai Khor (Varma 1964: 342-43, 1965, 1986a; Kennedy 1990), Lekhahia (Misra 1977: 53-57, Sharma 1965), Baidha Putpurihwa (Pal 2013) in Mirzapur district, Bhadahwan Pahar (Misra 1977: 179-80) in Chandauli district, and Chopani Mando (Sharma and Misra 1980) in Allahabad district in Uttar Pradesh. Banaras Hindu University excavated Lahariadih in Mirzapur district (Jayaswal 1983).

Geology, Palaeobotany, Zooarchaeology, Ethnoarchaeology, Physical Anthropology, Experimental archaeology and Microwear analysis, Palaeoclimate and Palaeoenvironment, Settlement pattern, etc. have helped to understand the Mesolithic culture of the north-central India.

Geological studies of the Pleistocene and early Holocene formations in the Ganga, Yamuna, Belan and Son valleys have been done extensively by the geologists and archaeologists to reconstruct the palaeoclimate and palaeoenvironment. The geological formation of the Holocene period being the top-most formation near the present surface is easily accessible to the geologists and archaeologists, to which Mesolithic sites are associated and hence we have better information about the Mesolithic culture.

Geological formations of the Belan have been studied in much details by several teams (Misra 1977, Sharma et al. 1980, Williams and Clarke 1995). The study of the geological formations and other allied disciplines have enabled us to reconstruct the palaeoclimate and palaeoenvironment of the Pleistocene and Holocene periods.

Ethnoarchaeological study at the sites and neighbouring areas of the Mesolithic sites also has helped in the reconstruction of the Mesolithic culture of the area. Among such studies mention

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may be made of study carried by Shahida Ansari (2001a, 2001b, 2005) in south central Ganga valley and northern Vindhyas.

The Vindhyas has a longer history of human history and there is stratigraphic evidence that the Mesolithic culture evolved from preceding Upper Palaeolithic culture, through the Epipalaeolithic. The Vindhyas is the area from where the microliths discovered by Carllyle completed the Stone Age sequence, filling the gap between Palaeolithic and Neolithic (Misra 2013).

There was a gradual evolution of microliths from the Epipalaeolithic which is a transitional stage between the Upper Palaeolithic and the Mesolithic (Varma 2002a). Within the Mesolithic also a sequence of four stages of development has been obtained in the Vindhyas (Varma 1986a, 1986b, 1986c; Misra 1977, 1999, 2007) from the excavations of Morahana Pahar, Baghai Khor, Lekhahia, Bhadahwa Pahar and Chopani Mando: (i) Non-geometric tools, pre-pottery, heavily patinated, (ii) Geometric tools, triangle alone, without pottery, (iii) Geometric tools, triangle and trapeze with pottery, and (iv) Geometric and diminutive tools with pottery. At Bhimbetka also in the rockshelter IIB-33 the lithic industry of the lowest layer is characterized by comparatively crude blade technique and a lower proportion of geometric forms than that of the upper layers (V.N. Misra 2002).

The longest Quaternary geological and cultural sequence has been worked out in the valleys of the Belan and Son. The Belan (Singh 1971: 624) together with its tributaries - Adwa, Seoti, Lohanda Nala, Tundiari, Gorma, Naina, etc., drains about 7800 square km area of northern Vindhyas encompassing parts of Mirzapur, Sonbhadra and Allahabad districts of Uttar Pradesh and adjoining areas of District Rewa of Madhya Pradesh. The explored area in the Belan valley measures 5400 sq. km. The geological formations in the Belan valley have been studied from Baraundha in Mirzapur district in the east to Belan-Tons confluence in Allahabad district in the west.

There was considerable increase in the human population during the Mesolithic period is attested not only by the larger number of sites but also by the colonization of the Gangetic plains by the Mesolithic people of the Vindhyas. About 400 Mesolithic sites have been located in the northern Vindhyas. Favourable climatic conditions and advanced technology in the Mesolithic phase as suggested by several archaeological finds including food processing equipments, ceramics, etc. paved the way for moderate life in comparison to the preceding phases.

A large number of Mesolithic sites (both open-air settlements and Rockshelters- both plain and painted) have been located in the Vindhyas by archaeologists of the Department of Ancient History, Culture and Archaeology, University of Allahabad. The open-air settlements are usually located on top of high cliffs of the rivers and nalas; on foot, slopes and tops of flat ridges of hillocks. The open-air sites range from .25 acre to 3.5 acres (B.B. Misra 2002). The concentration of artefacts is generally just below the surface soil. The rockshelters are located on top of the Kaimur and also on its slopes facing the rivers. The rockshelters have been formed by over hanging rocks, generally in the cliff section and sometimes on the ridges of the hillocks. The deposits in the rockshelters are formed of the occupational debris, ash, charcoal, stone artefacts, etc. The aeolian deposit also played some role in the formation of deposits. But in the open-air settlements, major portion of the deposit is a result of activity of natural agencies.

Excavations at Chopani Mando, an open-air settlement on the left bank of a palaeo-channel of the Belan, known as Old Belan, are significant yielding developmental sequence of the Mesolithic culture. Site is quite extensive and covers an area of 20,000 square m (200 m north to south along the old channel and 100 m east to west). For ascertaining the thickness of occupational deposit and culture sequence a small-scale excavation was conducted at the site in 1967. With a view to obtain detailed information about the salient features of different cultural phases represented at the site large scale horizontal excavations were conducted in subsequent years (1977-78, 1978-79, 1982-83 and 1984-85). An area of 945 square m, divided into 28 trenches, each measuring 5 X 5 m was exposed to varying depths. Excavations in most of the trenches were suspended at the depth of 30-35 cm below surface after exposing ground plan of 30 circular/ oval huts, 11 pit hearths and a few circular stone paved platforms of the last phase (Phase III). Excavations in two trenches were continued upto the

depth of 60 cm and 80 cm respectively. In these trenches structural levels of phase II B were exposed. Excavation was conducted upto bedrock only in one trench (N-H 3).

A total habitation deposit of 1.55 m, comprising 10 layers at Chopani Mando is divisible into three cultural phases: (i) Epipalaeolithic: This phase is represented by layer 10 resting on the disintegrated bedrock. The lithic assemblage of this phase shows a transition from late Upper Palaeolithic to early Mesolithic phase, (ii) Early Mesolithic: This phase is divisible into two sub-phases: Phase II A - Early Mesolithic, non-geometric microliths. Layers 9 and 8 constitute this sub-phase. These have yielded non-geometric microliths. The lithic assemblage from layer 9 is, however quite close typologically and in size to that from layer 10. Phase II B - Early Mesolithic, geometric microliths unassociated with pottery. Layers 7 to 4 constitute this sub-phase. These layers have yielded microliths including those of geometric shapes (triangles and trapezes). (iii) Advanced Mesolithic (Proto Neolithic): Layers 3 to 1 belong to this phase. This phase is characterized by the emergence of ill fired fragile handmade pottery and some new tool types - isosceles triangle and tranchet).

The excavation at the site is significant as it revealed a long sequence of different phases of the Mesolithic cultures with the evidence of several activity areas at the site (Sharma and Misra 1980). Fire-pits, accompanied occasionally, by traces of stone paving are, as a rule, the only structures suggesting that dwellings were constructed from organic materials. Traces of 37 circular or oval huts, 30 belonging to last phase (phase III), 2 to sub-phase IIA and remaining 5 to sub-phase IIB, have been found at the site. The floors of huts were littered with microliths, chips of sandstone, querns, mullers, anvils, hammer stones and a few ring stones. Stamped handmade pottery makes its first appearance in the Late Mesolithic phase.

In 1963 R.K. Varma (1986a) excavated two rockshelters and one open-air settlement at Morahana Pahar and Baghai Khor, near the village of Bhainsor on the Great Deccan Road in Mirzapur district. The description of stratigraphy given by R.K. Varma helps us to understand the archaeological record and site formation process (Varma 1986a). The excavation in the open-air settlement at Morahana Pahar revealed 92 cm thick deposit resting on the bedrock. The lowest deposit (Layer 6) is an accumulation of highly weathered and decomposed coarse grained horizontally bedded sandstone of pinkish and whitish colour. The over lying layer (5) is reddish in colour and is composed of gravels, sand and rolled pieces of sandstone. Non-geometric microliths were collected from this layer. The composition of the layer indicates that it was formed in a comparatively turbulent humid phase and the Mesolithic group of people was on the scene during the formation of this layer (Varma 1986a). Layer (4) is similar to the preceding deposit in colour and composition with the difference that pieces of gravels and sandstone become smaller and percentage of sand increases. Geometric microliths and a few fragments of potsherds also were found along with non-geometric microliths. In the overlying layer (3) gravel pieces become still more diminutive, sandstone pieces completely disappear and the percentage of fine sand increases. This brownish ashy layer is a regular deposit yielding highest number of microliths and similar pottery as in preceding layers. Layers 2 and 1 are aeolian deposits of fine sand yielding microliths and pottery. The painted rockshelter No. 4 was also excavated at Morahana Pahar. The lowest layer in the rockshelter was composed of reddish ashy material disturbed at a number of places by stones, which seem to have fallen down from the roof. The overlying layer 3 was a most regular layer composed of loose burnt earth of reddish to reddish-ashy-blackish colour. Microliths and pottery were found from layers 4 and 3. Layer 2 was composed of hard compact yellowish earth with small pieces of pottery and kankars. Layer 1 is composed of a very fine light yellowish reddish air-born earth.

The lowest deposit in Baghai Khor Rockshelter No. 1 was composed of small chips, ash and ashy earth. This layer yielded only non-geometric microliths. The overlying layer 3 was composed of fine sandy loose earth of light ochrish-yellow colour. Layers 2A and 2 were composed of ashy earth with stone chips. Layer 1 was a compact, hard and regular layer of slightly darkish colour. A single

dorsally extended human skeleton, with west-east orientation, head lying to the west, was uncovered at a depth of 30 cm below the surface of the present floor of rockshelter.

Excavations at Lekhahia in the rockshelter and outside by V.D. Misra in 1964 are also significant providing evidence of developmental sequence of Mesolithic culture. Lekhahia also is near Bhainsor in Mirzapur district where excavations were conducted in 2 out of 5 rockshelters (LKH-RS-I and LKH-RS-II) and three open-air settlements (LKH-1, LKH-2 and LKH-3) (Misra 1977). The excavations revealed a developmental sequence of Mesolithic from non-geometric to geometric microliths. Handmade pottery was found associated with geometric phase. While from LKH-RS II only microliths were found. LKS-RS I yielded skeletal remains of a good number of individuals.

A trial dig at the open air site at the foot of Bhadhanhwa hillock on the left bank of Chandraprabha river near Hetimpur in Chakia sub-division of Chandauli district revealed a deposit of 60 cm in thickness divisible into 6 layers, containing aceramic non-geometric microliths (Misra 1977: 79).

The lithic blade industries as revealed from different phases of Mesolithic cultures of the Vindhyas present variations in respect of typology, size and raw materials. At Lekhahia and Chopani Mando the first phase, i.e. Epipalaeolithic represents a transition from Upper Palaeolithic to Mesolithic. Generally made on cherty material the tools of this phase are smaller than those of Upper Palaeolithic and bigger and broader than those of the true Mesolithic phase. Most of the tools are made on broad, long and thick blades and flakes generally with triangular cross section. The finished tools include retouched blades, backed blades, scrapers, borers, burins, points and crude crescents or lunates. Fluted and amorphous cores, flakes, flake fragments, blades, blade fragments and debitage are the unmodified waste. The retouching is bold executed from dorsal and ventral or from both the sides. The fluted cores having one, two or more faceted or unfaceted platforms are cylindrical, conical or chisel ended and squattish in shape.

The phase II A i.e. Early Mesolithic (Non-geometric) is represented at all the excavated sites of the area. The chert was the most dominant raw material (95%) for making the tools. Besides chert, chalcedony, agate, carnelian, etc. have also been used for manufacturing the tools. The tools are fresh, less patinated and reduced in size as compared to those of the preceding phase. The blades and bladelets seem to have been removed from well-prepared fluted cores by pressure or punch technique. The assemblage consists of unmodified waste comprising flakes, blades, core trimming flakes, cores, flake/blade fragments, chunks; modified flakes, blades, flake/blade fragments, chunks, and finished tools. The tools consist of broad retouched blades, backed blades, notched and obliquely truncated blades, borers, points, micro-burins and various types of scrapers. Minute, fine and delicate retouching on the working edges of the tools is noteworthy.

The lithic tools of Phase II B i.e. Early Mesolithic (Geometric Aceramic) are reduced in size than those of the preceding phase and are comparatively less patinated and precisely made. Barring the long and broad retouched blades of Upper Palaeolithic tradition, almost all the tool types of preceding phase survive in this phase also. However, certain new tool types like serrated blades, microburins and geometric shapes- scalene triangle and trapeze were introduced. At Chopani Mando serrated blade and scalene triangle were introduced first in layer 7, microburins in layer 6 and trapeze in layer 5. Chert of various shades is still the principal raw material for making the artefacts, however, the percentage of non-cherty material - chalcedony, agate, carnelian, etc. increased in this phase.

Phase III is Late Mesolithic or Proto Neolithic. The tools made on blade and bladelets are diminutive in size, but are very precisely and delicately made and betray a high degree of workmanship. The finished tools include retouched blades, backed blades, truncated blades, backed and truncated blades, notched blades, denticulated blades, points, arrowheads (some with incipient tangs.), lunates, awls, microburins, scrapers, borers or drills, triangles, trapezes and tranchets. The modified/used pieces consist of flakes, blade/ bladelets, blade-flake fragments, cores and chunks, and unmodified waste include flakes, blade/

bladelets, core rejuvenating flakes, chunks. Percentage of non-cherty material like chalcedony, agate, crystal, carnelian, etc. increases in comparison to the preceding phase, but chert is still the principal raw material for manufacturing the artefacts. The most significant feature of this phase is appearance of handmade pottery.

From surface as well as from deposits of last phase of Chopani Mando, considerable numbers of large sized artefacts on tabular chunks of quartzite and occasionally of fine quality of sandstone were also found. Most of these are worked bifacially on both the lateral sides and occasionally on one or both the distal ends. Some of these have marked tangs or butts just above the shoulders possibly for holding or hafting. The tanged specimens with broad working edge were meant probably for cutting, chopping and scraping. Some of them are ground and look like the pick and chisel of succeeding Neolithic period.

Other stone objects made on quartzite and sand stones include ring stones, hammer stones, anvils, hammer stone-cum-anvils, rubbers, pestles, flat querns, stone balls and muller-cum-hammer stone.

The archaeological evidence suggests that the Mesolithic culture of the Vindhya presented a base for the origin of succeeding Neolithic culture of the region (Misra 2002).

Besides microliths the other cultural material of the Mesolithic culture in the area include bone tools, food processing equipments, structures in the form of pit-hearths and burnt plastered floors, ornaments, bone objects, beads, pottery, floral and faunal remains, etc. Some of the sites of the Vindhya have yielded heavy duty tools in form of choppers, chopping tools, splitters, ring stones and discoids.

A pit sealed by layer 1 of Rockshelter I at Lekhahia yielded cylindrical beads made from tubular bone while from layer 2A of the last phase of Chopani Mando was found a solitary example of stone bead. It is interesting to note that similar technique was used for making the stone bead and fashioning the fluted core for detaching the blade/bladelet. It has, therefore, been surmised that the antiquity of bead manufacturing technology may be traced back to the Mesolithic period (Clark and Sharma 1983).

The pit hearths are one of the most important structural remains of the open-air Mesolithic settlements in the Vindhya. Structural remain in the form of hutments, pit hearths, storage bins, etc., have been found from Chopani Mando, the open-air settlement on the Old Belan river in the Vindhya.

The excavations at Morahana Pahar, Baghai Khor, Lekhahia and Chopani Mando have yielded handmade pottery (Pal 1986: 74-83, 1997) in association with geometric microliths. It is generally ill-fired, fragile, weathered and worn out. The clay is not well levigated and contains silica, sand particles, rolled laterite pellets and calcium granules (Morahana Pahar, Baghaikhor) and sand and occasionally straw (at Lekhahia) and straw and husk (at Chopani Mando) as degraissants. It varies in fabric from medium to coarse and is represented by simple shapes – bowls and vases, and is devoid of any surface treatment - like slip or wash and in most of the cases surfaces have a tendency of peeling off. In some cases the neck and body were made separately and luted together subsequently. The whole ceramic assemblage is divisible into ochreous red ware and *khaki* or dull brownish grey ware. In both the wares bowl is most recurrent type. They are either shallow or hemispherical or convex sided and occasionally straight sided with outcurved, everted, or vertical featureless rim and occasionally internally bevelled rims. Vases have concave or carinated neck.

Incised sherds have been reported from Morahana Pahar, Baghai Khor and Lekhahia whereas impressed sherds have been found from Chopani Mando and Baghaikhor. Lekhahia has also yielded sherds with applique design. Incised designs consist of horizontal, vertical and slanting lines, criss-cross, irregular dots and squares. Some of the sherds are marked by unique impressed decorations on their exterior. Floral and conch shell like objects constitute the decorative motifs of the impressed potsherds. A few corded ware sherds were also found from Lekhahia. The cord impressed shapeless sherds have a coarse fabric, thick to medium section and gritty core containing small laterite granules.

Physical Anthropological Study of Human Burials and Other Customs also is one of the important aspects of multidisciplinary study. Mesolithic people buried their dead in graves within the habitation area, in rockshelters in the hilly region of central India. The sites with human burials are Baghai Khor and Lekhahia on the Kaimur. The burials and the human skeletal remains are the source of information for methods of disposal of dead, biological composition of human population, dietary habits, diseases and prevalent social customs. The skeletons in the Vindhyas in rockshelters are in extended position.

A single dorsally extended human skeleton, with west-east orientation, head lying to the west, was uncovered at a depth of 30 cm below the surface of the present floor of rockshelter No. 1 at Baghai Khor. The burial pit was cut from layer 2A into layers 3 and 4 and the bedrock also was dressed for preparing the grave (Varma 1986a). It was an extended burial. No grave goods other than microliths were found from the grave. The skeleton belonged to a woman of 20- 21 years of age with a stature reconstructed as 152.6 cm. The racial affinity of the individual is not known. The skeleton belonged to the geometric phase of Mesolithic culture associated with handmade crude pottery.

It is interesting to note that the first recovery of burials in Mesolithic sites of the Vindhyan range was made by A.C.L. Carlleyle, who found human remains at Morahana Pahar in 1880-81 (Allchin 1958; Cook and Martingell 1994), but as he did not salvage them for scientific study, some 80 years elapsed when other human skeletons were encountered in this region. The single skeleton from Baghai Khor in rockshelter No. 1, a site Carlleyle visited in 1874, was relatively complete at the time R.K. Varma (1965, 1986a) found it below the second level of his trench (Kennedy 2000). Kennedy has made an observation on the bones of lower extremity of the skeleton, which are markers of habitual strenuous locomotor activity and is result of preference for a squatting resting posture that reflect a lifeway not uncommon to hunting-foraging peoples (Bridges 1996).

P.K. Seth who was the first anthropologist to analyse the skeletons from Lekhahia viewed that skeletons belonged to 17 individuals (Misra 1977). Subsequent morphometrical analysis by Lukacs indicates a minimum of 27 individuals (Lukacs and Misra 2000, 2002). Examination of the skeletal remains suggests that there are 11 males, 10 females and eight skeletons of undetermined sex. Their age ranges from a child of six to eight years to an adult of 50 to 55 years. There are some fragments of a perinatal infant. There is evidence of healing of fracture of humerus bones and parry fracture of ulna and also marker of occupational stress. The meticulous way in which the graves have been prepared and the way in which the body was placed and the placement of grave goods in the form of microliths, bone tool, meat, animal bones, molluscan shell, tortoise scute, etc., inside the graves suggests that the Mesolithic people had developed ritual practices and believed in some sort of life after death (Misra 1977, Varma 1981-83).

Microwear analysis of some of the microliths from the Vindhyas and the Ganga plain were carried by J.N. Pal (1996, 1996-97, 2002) in 1995. The tentative results indicate that the microliths were used for scraping, sawing, cutting, drilling, incising, grooving, etc. Evidence of hafted tools and tools used as arrowheads were also inferred on the basis of edge damage feature. Among the tentative contact material on which tools were utilized mention may be made of hide, dry hide, meat, soft plant, green grass, green reed, dry reed, green wood, dry wood, fresh bone, dry bone and antler. These inferences indicate hunting and gathering subsistence which compare well with those of other archaeological remains and bioarchaeological studies. Besides microlithic tools, bone tools including bow and arrow also were used for hunting and foraging.

Plant remains are rare except from Damdama (Kajale 1990, 1996) in the Gangetic plain and Chopani Mando in the Vindhyas. The grains were probably collected from edible grasses. Plant food also was a major part of the diet is attested by heavily utilized grinding stones from most of the Mesolithic settlements. Starch grain analysis on microliths from Bagor phase one also indicates inclusion of wild grains and fruits (Shinde 2008). Remains of charred rice/rice husks were found embedded in the lumps of burnt clay from the excavations at Chopani Mando in the last phase. This evidence indicates that the plant foods formed an essential element of the economy of Mesolithic

settlers. Mesolithic paintings in rockshelters also provide evidence of inclusion of plant food and honey collection (V.N. Misra 2002., Varma 2002b, Mathpal 1984, Pant 1999, Tewari 1990).

Though the antiquity of art activity in India is traced back to the Upper Palaeolithic period, the richest art activities are associated with the Mesolithic people. The art of the Mesolithic period in the Vindhya is represented by a large number of rock paintings in the rockshelters and several movable art objects recovered from excavations. Paintings are found on the ceiling and side walls of the rockshelters.

The rockshelters and rock paintings of the Vindhyan region are not documented in much detail as have been documented those of around Bhimbetka (Varma 1984). Rakesh Tewari explored several important painted rockshelters in Mirzapur district (Tewari 1990, Tewari et al. 1995-96).

The rock paintings have thrown welcome light on the hunting methods during the Mesolithic period. Ferocious big games like rhinoceros, bison, boar etc., were hunted in groups by spears and harpoons. The hunting scenes of small games like deer are shown being hunted by bow and arrow (Varma 2002b).

The Mesolithic sites are associated with the last geological formation of the river valleys. Except a few sites mostly the excavated sites have revealed faunal remains of wild animals. Wild edible grains were collected and processed for food. The available evidence would suggest that during the late phase of the Mesolithic culture, the quasi sedentary settlements had set in at some favourable sites. The archaeo-geological records indicate that the antiquity of the Mesolithic culture may be traced back to the beginning of the Holocene. There is evidence to suggest a gradual evolution of the Mesolithic culture. However, it can be inferred that even after the commencement of the Neolithic culture there remained certain pockets where people still continued to lead a Mesolithic way of life. The occurrence of cord-impressed pottery, a characteristic feature of the Neolithic culture of the Vindhya, at some rockshelter sites of the Vindhya in its upper levels, would indicate a symbiotic relationship between the two cultures i.e. Mesolithic and Neolithic.

The evidence of incipient domestication of animals, inclusion of wild grains in the diet, heavy use of food processing equipments like querns and mullers made of sand stone and quartzite, structural activity in form of hutments, storage bins, handmade ill-fired crude stamped pottery from some sites, continuation of microlithic tools and bone arrowheads, etc., indicate that the Mesolithic culture transformed into Neolithic culture in the Vindhya with no sharp dividing line between the two (Misra 2002, Agrawal and Kharakwal 2002: 99, Misra 2007-08).

The stratigraphic evidence obtained from the geological deposit of the Belan and typological analysis of artifacts suggest that the Epipalaeolithic and Mesolithic cultures have gradual evolution from the Upper Palaeolithic culture of the area (Varma 1981-83, Misra. 2002). For computing the chronology of Mesolithic culture some radiometric dates have been obtained (Table 1).

Radiometric dates

Site	Date	Reference
Baghor II	6380±220 B.C.	(Possehl and Rissman 1992: 461)
Lekhahia Rockshelter I	AMS C ¹⁴ dates 6420±75 B.C. and 6050±75 B.C.	(Lukacs <i>et al.</i> 1996: 301-11)
Barkhera	C14 date 5520±130 B.C.	. (Possehl and Rissman 1992: 461, Table 3)
Adamgarh	C14 date 5505±125 B.C.	(Possehl and Rissman 1992: 461, Table 4).
Sarai Nahar Rai	C14 date 8395±110 B.C.	. (Possehl and Rissman 1992: 461, Table 4)
Damdama	AMS C ¹⁴ dates 6690±65 B.C. and 6915 ±65 B.C.	(Lukacs <i>et al.</i> 1996: 301-11)
Bagor	Phase A Ceramic Mesolithic 5680 B.C. Phase B Ceramic Mesolithic 4490 B.C.	(Shinde <i>et al.</i> 2004, Shinde 2008).
Paisara	7420±110 B.C.	(Lukacs and Pal 1993: 745-65)
Loteshwar	6010±120 B.C.	(Bhan, 2004:99)

In the light of the above cumulative evidences, the Mesolithic culture of India may tentatively be placed in a time bracket of 10,000B.P.–8000 B.P. A time-bracket of 10,000-8000 B.P. for the Mesolithic culture of the Belan and Son valleys has been proposed on the basis of recently obtained Infra Red stimulated luminescence Ages (Pal *et al*,2004: 62 – Table 4, Williams et al. 2006).

Thus, it can be concluded that picture of the Mesolithic culture of the Belan valley and Kaimur has been reconstructed in much detail mainly due to multidisciplinary studies.

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Distribution and Ecological Assessment of Wild Monocot Flora in Madhepura Region

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Abstract

The present study focuses on the distribution and ecological assessment of wild monocotyledonous flora in the Madhepura district of Bihar, India. Field surveys were conducted in diverse habitats such as wetlands, grasslands, agricultural margins, and forested areas to document wild monocots. A total of 72 species belonging to 11 families were recorded, with Poaceae, Cyperaceae, and Liliaceae being dominant. Ecological parameters such as frequency, density, abundance, and diversity index were calculated. The findings highlight habitat-specific species richness and underscore the impact of anthropogenic activities on local monocot diversity. This study serves as a baseline for conservation and sustainable use strategies of wild monocot species. Ecological assessment revealed that habitat fragmentation, overgrazing and unsustainable land use practices pose significant threats to the survival of many monocot species. The study also highlighted the ecological importance of monocots in preventing soil erosion, supporting wetland ecosystems and serving as food and shelter for local fauna. Conservation strategies, including habitat restoration and community based awareness programs are recommended to safeguard this valuable plant group. This research provides baseline data for future botanical and ecological studies and supports biodiversity conservation planning in the region.

Keywords: Wild monocots, Madhepura flora, Distribution, Ecological assessment, Species Diversity, Poaceae, Conservation.

1. Introduction

Monocotyledonous plants constitute a major portion of angiosperm diversity and play vital roles in ecosystems, ranging from primary production to habitat stabilization. The district of Madhepura, situated in the Kosi zone of Bihar, holds a rich biodiversity, especially in its wild flora. Despite this richness, scientific documentation, especially of monocots, remains sparse. This study aims to explore, document, and assess the distribution and ecological characteristics of wild monocot flora in the region. Plant biodiversity is a vital component of ecosystem structure and function, contributing to ecological stability and the overall health of the environment. Among flowering plants, monocotyledons (monocots) form a major group characterized by features such as a single cotyledon, parallel leaf venation, and fibrous root systems. Monocots include ecologically and economically important plant families such as Poaceae (grasses), Cyperaceae (sedges), Araceae, and Liliaceae, many of which are widely distributed in various natural and semi-natural habitats.

The Madhepura region of Bihar, located in the alluvial plains of the Kosi River basin, hosts a rich diversity of wild plant species due to its varied ecological conditions. However, systematic studies on monocot flora in this region are lacking. The region's diverse microhabitats—including wetlands, grasslands, fallow lands, riverbanks, and agricultural fields—offer suitable niches for a wide range of monocot species. These plants not only contribute to the plant diversity but also play essential ecological roles such as stabilizing soils, conserving moisture, supporting pollinators and herbivores, and maintaining wetland ecology.

Despite their ecological significance, wild monocot species are increasingly threatened by habitat loss, unregulated grazing, urbanization, and intensive agriculture. As a result, several native

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species are at risk of local extinction. It becomes imperative to document, analyze, and assess the ecological status of monocot flora to ensure their conservation and sustainable management.

This study aims to explore the distribution patterns, habitat preferences, and ecological roles of wild monocot flora in Madhepura district. It also seeks to identify threatened species and propose conservation strategies based on field data and ecological indicators. The findings are expected to contribute valuable insights into the botanical diversity of the region and serve as a baseline for further ecological and taxonomic research.

2. Objectives

- i. To identify and document wild monocot species in Madhepura district.
- ii. To analyze their habitat-wise distribution.
- iii. To assess ecological indices like frequency, density, abundance, and Important Value Index.
- iv. To evaluate conservation status and threats to wild monocots in the region.

3. Materials and Methods

3.1 Study Area The study was conducted in the Madhepura district of Bihar, situated in the Kosi River basin in northeastern India. Geographically, the district lies between 25°34'–26°07' N latitude and 86°19'–87°07' E longitude, with an average elevation of 50–60 m above sea level. The region experiences a subtropical climate characterized by hot summers, a monsoon season, and mild winters. Habitats surveyed included wetlands, riverbanks, agricultural fields, grasslands, and fallow lands.

3.2 Field Survey and Plant Collection:

Extensive field surveys were carried out over two consecutive growing seasons (March–October) covering all major habitat types. Quadrat sampling (1 m × 1 m for herbs/grasses; 5 m × 5 m for larger assemblages) and random-walk methods were used to ensure representative sampling. For each specimen, GPS coordinates, habitat type, locality, collection date, and collector name were recorded and the plants were tagged in the field. Standard herbarium techniques were followed for pressing, drying, and mounting specimens.

Duration: August 2023 to March 2024.

Sites: Singeshwar, Gwalpara, Murliganj, Alamnagar, Kumarkhand and flood affected regions.

Sampling: Quadrant method (1m x 1m plots) across 30 sites covering grassland, forest margin, wetland, and roadside habitats.

3.3 Identification and Classification

Plants were identified using standard floras (Flora of Bihar, Hooker's Flora of British India). Specimens were collected, dried, and preserved in the herbarium of B. N. Mandal University.

Specimens were identified using regional floras—*Flora of Bihar* (Haines), *Flora of India* (BSI)—and verified against digital resources such as The Plant List and POWO. Voucher specimens were cross checked with authenticated collections housed at Patna University Herbarium (PUH) and the Central National Herbarium, BSI Kolkata, to confirm nomenclature and taxonomy.

3.4 Ecological Assessment

For each species, ecological variables recorded included habitat type, abundance (number of individuals per quadrat), frequency, soil texture, and moisture class. Life form categories (e.g., herbs, grasses, sedges) followed Raunkiaer's system. Conservation status was assigned using IUCN Red List categories where assessments were available. Species diversity was quantified using Shannon–Wiener (H') and Simpson's (D) indices.

3.5 Data Analysis

Field data were compiled in Microsoft Excel and analyzed with PAST 4.11 software. Outputs included species richness curves, dominance–diversity profiles, and habitat preference matrices. Descriptive statistics guided interpretation of distribution patterns and ecological significance. Photographs and detailed field notes supplemented the quantitative dataset to aid future comparative studies.

4. Results and Discussion

4.1 Species Composition and diversity

Total Species: 72

Families: 11

- Poaceae: 27 species

- Cyperaceae: 18 species

- Liliaceae: 6 species

- Zingiberaceae, Araceae, Orchidaceae: Minor contribution

A total of 72 wild monocot species were recorded during the survey, belonging to 11 families and 72 genera. The most dominant family was Poaceae (grasses), followed by Cyperaceae (sedges) and Araceae. These families were primarily distributed in wetlands, grasslands, riverbanks, and agricultural margins.

4.2 Habitat-Wise Distribution

Wetlands: Dominated by *Cyperus rotundus*, *Echinochloa colonum*, *Phragmites karka*

Grasslands: *Cynodon dactylon*, *Chloris barbata*

Forest Margins: *Asparagus racemosus*, *Costus speciosus*

Roadsides: *Saccharum spontaneum*, *Imperata cylindrical*

The distribution pattern showed that monocots were more abundant in moist and semi-aquatic habitats, with certain species showing a preference for shaded, clayey soils (e.g., *Colocasia esculenta*), while others thrived in open, dry, and sandy soils (e.g., *Cynodon dactylon*). Rare and localized species were observed in undisturbed marshes and forest edges.

4.3 Life Form and Habitat Association

Analysis revealed that the majority of species were herbaceous in nature. Grasses and sedges accounted for over 65% of the total monocot diversity. Life-form classification showed the dominance of therophytes and hydrophytes, indicating an adaptation to seasonal variation in water availability and frequent soil disturbance.

Habitats with low anthropogenic pressure (e.g., riverbanks and natural wetlands) had higher species richness and ecological stability. In contrast, heavily grazed or cultivated lands exhibited lower diversity, with only a few generalist species dominating those areas.

4.4 Ecological Importance and Indices

Monocot plants play crucial roles in soil conservation, moisture retention, and providing habitat for insects and small animals. Species such as *Saccharum spontaneum* and *Phragmites karka* were found to contribute significantly to flood control by stabilizing riverbanks. Several wild grasses serve as fodder for livestock, while others are used in local traditional medicine and rituals.

Ecological Indices of some species

Species	Frequency (%)	Density	Abundance	Important Value index
<i>Cynodon dactylon</i>	85	48/m ²	56	18.9
<i>Cyperus rotundus</i>	78	32/m ²	41	14.5
<i>Saccharum spontaneum</i>	60	28/m ²	35	11.2

Shannon Diversity Index: 3.25

Simpson's Index: 0.91

5. Discussion

The dominance of Poaceae and Cyperaceae indicates the adaptation of monocots to open and moist habitats typical of Madhepura. Species such as *Saccharum spontaneum* and *Cynodon dactylon* show resilience to disturbed habitats, suggesting their ecological importance in soil stabilization. Rare and less abundant species such as *Orchis latifolia* and *Curculigo orchoides* need conservation attention. Anthropogenic pressure, especially overgrazing and agricultural expansion, poses major threats to wild monocots.

6. Conclusion

This study provides the first comprehensive ecological assessment of wild monocot flora in Madhepura. The diversity observed highlights the ecological richness of the region. Effective conservation strategies, including habitat restoration and community participation, are essential to preserve monocot diversity. Future research should explore medicinal potential and climate resilience of these plants.

7. Summary

The present study focuses on the **distribution patterns and ecological evaluation of wild monocot flora in Madhepura district of Bihar, India**. Monocots represent a major group of angiosperms that are ecologically and economically significant. The region of Madhepura, characterized by its unique terai and Gangetic alluvial plains, supports a diverse array of monocot species that thrive in varied habitats such as wetlands, grassland, riverbanks and agricultural fields. Ecological parameters such as soil type, moisture, light and anthropogenic disturbance were assessed to understand their influence on the distribution and growth of monocot species. The study reveals a rich diversity of monocot plants, many of which hold ethnobotanical, medicinal and ecological importances.

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Study of Dietary Intake Status of Children Studying in Government Schools of Sonebhadra District, U.P. (India)

Manjusha Rai*

Abstract:

According to survey of the Global Hunger index (2024) report, India's got ranking 105th among 127 countries holding the 'serious' category. Although the GHI (Global hunger index) figure had improved from 2000 to 2024 which is from 38.4 percent to 27.3 percent respectively, this indicated improvement in hunger Index level. Although challenges are still very serious for India. According to 2019-21 report of the National Family Health Survey (NFHS-5), the affected rate of anaemia with poor malnutrition among children from 5 to 9 year of age was 31 percent. Such a serious problem can damage cognitive development and academic performance badly. Mostly report mainly focused on children below 5 years of age but provide limited data on school going children while this age group needs more attention. The survey reported that many states of India had serious occurrence of malnutrition. The present study was a descriptive cross-sectional study for assessing the dietary status of primary school children (5-9 years) of Sonebhadra District, Uttar Pradesh (India). This study was done for determining dietary intake status among school going children. Survey work conducted for the study between March 2023 to May 2024 in the government schools of Sonebhadra District. 325 students were taken from different Government School of Sonebhadra District. Present study revealed that mostly children consumed less amount of nutrient intake like energy, Protein, Calcium and Iron as compared to EAR and RDA value.

Key Words: Malnutrition, Nutrients, Children, EAR, RDA.

Introduction:

The main foundation of life occurring in school age and this age included physically, mentally, emotionally as well as socially crucial changes amongst the children. In short, school age is a foundation of a healthy and active mind.

Good nutrition is essential for Children's growth, survival, participation in play and engage in different kind of activities. On the contrary, due to under-nutrition the life of children hangs in imbalance and their future is lost in the dark (WHO; 2019).

Mal-nutrition is a very broad term, which includes all deviations from an adequate to optimal nutritional status that result from a specific nutrient deficiency from a diet which is based on inappropriate combinations or proportions of foods. High-calorie and nutrient consumption beyond the necessary growth, development and metabolic function is known as overnutrition, this leads to obesity. Undernutrition is not only due to insufficient dietary energy intake, but can also to infections that reduce the absorption of important nutrients, it often used interchangeably with Malnutrition (Shetty; 2003).

Mal-nutrition leads to decreased academic performance, decreased I.Q. levels, poor psychological development, increased school dropouts, retarded cognitive development that result in reduced adult growth which influences economic productivity (UN Administrative Committee; 2000). According to survey of the Global Hunger index (2024) report, India's got ranking 105th among 127 countries holding the 'serious' category. Although the GHI (Global hunger index) figure had improved from 2000 to 2024 which is from 38.4 percent to 27.3 percent respectively, this indicated improvement in hunger Index level. Although challenges are still very serious for India.

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According to 2019-21 report of the National Family Health Survey (NFHS-5), the affected rate of anaemia with poor malnutrition among children from 5 to 9 year of age was 31 percent.

Material and Method:

The present study was a descriptive cross-sectional study for assessing the dietary status of primary school children (5-9 years) of Sonebhadra District, Uttar Pradesh (India). This study was done for determining dietary intake status among school going children. Survey work conducted for the study between March 2023 to May 2024 in the government schools of Sonebhadra District. 325 students were taken from different Government School of Sonebhadra District.

Results: Table 1. Comparison of Nutrient Intake of the Government School Children with EAR & RDA:

Nutrient	Govt. School Children (n=325)	EAR Value	RDA Value
	Mean \pm SD		
Energy (Kcal)/d	1431.18 \pm 187.32	1530	---
Protein(gm)/d	11.45 \pm 4.63	16.0	19.5
Fat (gm)/d	20.13 \pm 10.32	---	27.5
Calcium (mg)/d	431.87 \pm 65.71	475	600
Iron(mg)/d	7.82 \pm 2.86	9.0	13.0

Table-1 indicated that per day intake mean value of energy, protein, fat, calcium, and iron was found to be low in both communities as compared to recommended value. This value was found to be much lower in government school children. The per day intake mean value of Energy, Protein, Fat, Calcium and Iron among private school children was to be found 1506.89 \pm 179.31KCal., 15.67 \pm 5.34gm, 24.68 \pm 11.75gm, 472 \pm 85.67mg and 9.67 \pm 4.23mg whereas in government School's children.

Table 2. Gender-wise Comparison of Nutrient Intake of Children with EAR & RDA:

Nutrient	Male (n=165)	Female (n=160)	EAR Value	RDA Value
	Mean \pm SD	Mean \pm SD		
Energy (Kcal)/d	1445.64 \pm 187.29	1416.26 \pm 186.76	1530	---
Protein(gm)/d	12.11 \pm 4.6	10.77 \pm 3.64	16.0	19.5
Fat(gm)/d	21.66 \pm 8.55	20.75 \pm 7.24	---	27.5
Calcium (mg)/d	415.61 \pm 30.94	408 \pm 36.03	475	600
Iron (mg)/d	8.01 \pm 1.74	7.6 \pm 1.98	9.0	13.0

Table-2 indicated that per day intake mean value of energy, protein, fat, calcium and iron was found to be low in both genders as compared to recommended value. This value was found to be much lower in female than male. The per day intake mean value of Energy, Protein, Fat, Calcium and Iron among male was to be found 1445.77 \pm 187.29 KCal., 12.11 \pm 4.6gm, 21.66 \pm 8.55 gm, 415.61 \pm 30.94 mg and 8.01 \pm 1.74 mg whereas in female children this value was 1416.66 \pm 186.61KCal., 10.77 \pm 3.64gm, 20.75 \pm 7.24gm, 408 \pm 36.03mg and 7.6 \pm 1.98mg accordingly.

Discussion:

In the present study it was observed that mean value of nutrient intake per day varies among school children, mostly children consumed less quantity of nutrient intake compared to recommended value of nutrient. In the study per day nutrient intake mean value among government school children was energy 1431.18 \pm 187.32 Kcal., Protein 11.45 \pm 4.63 gm., fat 20.13 \pm 10.32 gm., calcium 431.87 \pm 65.71 mg. and iron 7.82 \pm 2.86 mg. recorded. A study finding was also conducted by Mahapatra et al. (2022) in which Government school children had lower mean values of nutrient intake recorded.

The mean value of nutrient intake was lesser than recommended value in both gender of children. In the present study it was observed that per day nutrient intake mean value was lesser

among girls than boys. Per day nutrient intake mean value consumed by boys were: energy 1445.64 ± 187.29 Kcal., protein 12.11 ± 4.6 gm., fat 23.37 ± 10.67 gm., calcium 415.61 ± 30.94 mg., and iron 8.01 ± 1.74 mg., recorded while in girls mean value of per day nutrient intake was: energy 1416.26 ± 186.76 Kcal., protein 10.77 ± 3.64 gm., fat 20.75 ± 7.24 gm., calcium 408 ± 36.03 mg. and iron 7.6 ± 1.98 mg. recorded. Similar findings were also recorded by Rani et al. (2016), in their study the mean value of per day nutrient intake in female was found lesser than boys and both values were not accordingly to recommended value, it was found lesser as compared to RDA.

Conclusion:

Present study revealed that mostly children consumed less amount of nutrient intake like energy, Protein, Calcium, and Iron as compared to EAR and RDA value.

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Sociology of Back-Tracking the Pace of Directive Principles of State Policy : The Phase of Adjustment and Compromises with the Forces of Globalization, and Manifestation of the 'Clash of Civilization' : An Overview

Dr. Ramesh Chandra Yadav*

Introduction:

For a very long time, religious beliefs were a major factor in the expansion of international trade and commerce. Religion, which has always strived to disseminate its message beyond the ethnic and geographical bounds of its birth, is what Reza Aslan calls "the only factor that can be argued to have had a bigger influence in moving globalization ahead". During the course of this piece, it will become clear that this concept is not intended to be provocative or ground-breaking. Yet, the prevalent line of thought on the topic of globalization, as articulated by notable figures like renowned writer Thomas Friedman, puts economics at the center of study and skews emphasis away from the ideational variables at work in this process. The problem with the Western-centric economic approach to studying globalization is that it has to start with the colonial-imperial history of Europe, namely with the so-called Great Discoveries. While the word "globalization" wasn't created until the 1990s, globalization started long before European explorers sailed over the enormous Atlantic Ocean to discover the Americas. Part of the reason why the economic-centric view of globalization fails is because religion is the driving force behind it, and it has been for millennia. Even if it's only a small fraction of the whole, the history of religion and globalization is crucial to comprehending the process of globalization itself¹.

In the qualitative, multi-case analysis that follows, we see that the stories of many religious actors from various traditions are treated as equal. This is the case even for performers working within the same tradition, since they all live in unique physical or temporal situations. Because of the seeming contradiction that some players gain from a mutually reinforcing connection with globalization while others are disadvantaged, it is important to shed light on some of the particular ties and wedges that make this possible. So, it is necessary to specify the historical framework within which globalization occurs. Some people may be reluctant to acknowledge the role that religion has had in the process of globalization because they see it as only a contemporary phenomenon. Even John O'Sullivan, whose slick assessment of the Vatican's part in toppling communism makes Pope John Paul II a founding father of the post-Cold War era, would have a hard time arguing for the role of the religious actor as a globalizing force if globalization really did start with the fall of the Berlin Wall, as Friedman might suggest. Although it may be appealing to see globalization only through a post-Westphalian prism, doing so would simply serve to further emphasize an economic-centric perspective. If, on the other hand, we see globalization as a lengthy historical trend, or as a succession of such trends, we may broaden our understanding of the term to include the influence of ideas and cultural interchange, as well as the role that religion can play in this process.

Objectives of the Study:

- 1- Contribution and cold shouldering of the execution of Directive Principles of State Policy by legislation.
- 2- The Fundamental Rights and their constitutional position be harmonized with the Directive Principles of State Policy.

Research Methodology:

The research approach employed for this study is a qualitative approach, specifically a sociological perspective. Qualitative research involves exploring in-depth insights, perspectives, and meanings rather than numerical data and subject to certain limitations as the research is based on the secondary data.

Review of Literature:

Balasubramanian Thirugnanam (2022) For the state and its people to develop economic democracy in India, Directive Principles of State Policy provide crucial guidelines. The Indian Constitution's drafters

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aimed to recommend an economic system that would be best suited to the country's circumstances rather than imposing any specific system on the populace. The Forty-second Constitution Amendment Act, which was passed, stipulates that India must be a socialist democracy, however not in the classic meaning, but rather in the manner that best matches Indian circumstances. A split of basic rights into two categories—judicable and non-judicable—was suggested by the Sapru Committee. It was a good idea to include "Instruments of Instructions" in the Constitution Act of India of 1935, said Ambedkar. It is abundantly obvious from Dr. Ambedkar's aforementioned comment that the government is not bound by these ideals. The government must work hard. Nobody can challenge it in court or under the law if, despite its best efforts, it fails to uphold these ideals. liberal and academic, this group contains the issues that liberal thinkers have been pressing for years, such as (foot) The State must work to ensure that people have access to a unified civil code throughout the whole of India.

Justice Kurian Joseph, "Judiciary and Social Welfare in India" (2013) – The author emphasizes social wellbeing as a concept. The Indian Constitution's Part III on Fundamental Rights and Part IV on Directive Principles of State Policy serve as the framework for social welfare policies. They roughly correspond to the so-called negative and positive, or civil and political and social and economic rights, respectively, streams in the growth of human rights.

Srinibas Nayak, Akash Trikha. (2020). With an eye toward fostering economic democracy in India, the State Political Guidelines provide recommendations for both the government and the general populace. The Indian constitution's authors did not try to impose a certain economic system on the country's population, but rather to recommend one that might work better in India. Constitutional rights, the Directive Principles of State Policy, often include socioeconomic and cultural rights portrayed as obligations, on the state without reciprocal rights to the people. Adopting this formulation of the Directive Principles of State Policy is motivated by one or more political or economic aims, and governments' confidence that achieving these principles and objectives would facilitate, if not eliminate, the problem. Both India and Nigeria, the two nations under consideration, have had their share of the issues and challenges listed above. Therefore, this study analyses the development of this idea throughout the constitutional drafting processes of India and Nigeria.

Sharmendra Chaudhry (2011) The Union and Indian state governments are required to take into account the directive principles of state policy whenever they create new legislation or alter existing policies. While the citizens of India have no legal standing to demand that the states adhere to the directive principles outlined in Article 144 of the Indian Constitution, the states are obligated to take those principles into account whenever they draught new legislation in an effort to foster a more just and equitable society. These guidelines, which draw heavily on the Irish constitution and Gandhian philosophy, have as their stated goals the promotion of social justice, economic prosperity, sound foreign and domestic policies, and efficient institutional administration.

Dr. Amaresh Chandra Sahoo (2018) Constitutional provisions and the guiding principle of social fairness are the Directive Principles of State Policy (DPSP). The Constitution's Articles and Amendments provide the framework for the government and reflect the broader goals articulated in the Constitution's Preamble. Justice on all fronts is a goal of DPSPs. These are included in order to realize the preamble's ultimate goals of justice, liberty, equality, and fraternity. In addition, it represents the welfare state ideal. L.M. Singhvi argues that Article I, Section 8 of the Constitution, which outlines the Directive Principles of State Policy, is the Constitution's "vital" component. It is commonly held that if all of these principles were fully implemented, the United States would indeed be a welfare state where there is economic equality between its different citizens and where everyone has the same opportunity to educate oneself, work, and reap the reward of one's labour, akin to a utopia. The Supreme Court has ruled that DPSP constitute the "core" of the Constitution. The Indian Constitution establishes guidelines that are vital to the running of the nation but are not themselves subject to judicial review. The State is obligated to use these criteria when formulating policies. For the benefit of its citizens, the state should ensure and defend a social order in which social, economic, and political fairness permeate all spheres of national life.

Defining and Delineating Globalization:

In contrast to "religion," however, the notion of globalization is murky enough that it needs clarification by way of addressing its own definitional quandaries¹. While the most common explanation for globalization focuses on its economic aspects, defining globalization may be as difficult as doing so for

religion. Among other things, it facilitates "the flow of products, money, services, and the migration of labor," as defined by the United Nations Economic and Social Commission for Western Asia. Experts like Friedman, who sees globalization as an international system driven by capitalism, free trade, the spread of technology and information, and the "inexorable integration of markets, nation-states, and technologies to a degree never witnessed" are unlikely to be bothered by the fact that such definitions portray globalization as an exclusively economic occurrence. Similarly, neither Kevin H. O'Rourke nor Jeffrey G. Williamson would likely object. To them, globalization is "the integration of worldwide commodities markets". That economics play such a central role in the common understanding of globalization is reflected in the term's definition in dictionaries like Merriam-Webster's, which describes globalization as "the development of an increasingly integrated global economy marked especially by the tapping of cheaper foreign labor markets".

The economic-centric definition of this pervasive force is insufficient because it paints an incomplete picture that cannot convey the full reach and depth of globalization. After all, globalization isn't only about money, products, and tech; it also includes the exchange of people, information, and cultural practices. While contemporary globalization has been mostly driven by large companies, financial institutions, and multinational organizations, religious players "are among the oldest of the transnationals," as Susanne Hoerber Rudolph puts it. She believes that Sufis, Catholics, and Buddhists, to mention a few, have each "carried speech and action over large areas before those regions were nation-states or even states". In this way, religious players play a crucial role in the development of globalization¹. Yet, this fact is obscured by the economic definition of globalization, which suggests that globalization is something new. So, the question "when did globalization begin?" is crucial to answering before this idea can be described adequately. On this question, several scholars first consult Friedman, a pioneer in the field of international relations. He claims in *The Lexus and the Olive Tree* that modern globalization is an artificial creation, the systematic actualization of capitalism's triumph over communism in the early 1990s. Friedman only acknowledges one previous time in history when international integration was significant enough to be called "globalization." According to him, the period of time that may be called "Globalization Round I" ended in the late 1920s as a result of the disruptive effects of the Great Depression. Thus, the Cold War trifurcation, as argued by Friedman, turned the globe into a sluggish, "divided, chopped-up environment," with almost every nation falling into separate communist, capitalist, and neutral camps. So, the conclusion of the Cold War was necessary for globalization to resume, or "Round II" in Friedman's terminology.

David M. Smick agrees that there is nothing especially new about the world's present economic position, so although he could accept that the factors fueling globalization started far earlier than the 1990s, even he is hesitant to break with Friedman's paradigm. Although Smick agrees that there was a period of globalization in the 19th century, he claims that the present phase of globalization only started during the past quarter of a century, with the integration of financial markets throughout the globe. Smick says that the integration of financial markets "got globalization started" since nations like the United States were locked in a closed economic structure prior to the 1980s. Hence, the liberalization of financial markets and politics "as a solution to the economic stagnation of the 1970s" ushered the period of free trade, which in turn signaled the birth of globalization. But now Friedman has a different strategy¹. The author of *The World Is Flat* looks at globalization from a Western viewpoint, arguing that it started in 1492 with Christopher Columbus's discovery of the New World and subsequent European explorations². Friedman, unable to completely abandon his previous framework, now classifies globalization into three distinct time periods. Imperialism marked the beginning of the first period of globalization, which lasted from 1492 until around 1800. This second period, which he now calls Globalization 2.0 and which he claims started in 1800 and concluded in 2000 (rather than with the commencement of the Great Depression), was propelled by corporate growth. Put differently, American and European firms became the driving force behind Globalization 2.0 because they needed new markets and more workers. Globalization 3.0, the present epoch, according to Friedman, started around the year 2000 and is characterized by personal autonomy. People may now assess their own value and potential in the international economy. In addition, Globalization 3.0 is opening doors for people of all walks of life, which, in Friedman's estimation, makes this era of globalization the first to be really inclusive of those from beyond the Western hemisphere.

On the other side, O'Rourke and Williamson discredit those who "attribute globalization 'big bang' importance to 1492 and 1498." They claim that historians who disagree with this view "are on the side of Adam Smith who felt" that the discoveries of America by Columbus and Africa by Vasco da Gama were the two most significant events in human history. Also, they have doubts about the world-systems perspective, which states that the current global order has been in place for at least the last five thousand years without interruption. Nevertheless, O'Rourke and Williamson use quantitative and qualitative evidence to suggest that the era of rapid globalization began in the early 19th century. O'Rourke and Williamson conclude that the paradigm of an open global economy, which is a necessity for globalization in their view, simply did not exist before to 1828, meaning that the globe was unable to reap the benefits of the Great Discoveries immediately after 1490.

While there is no doubt that modernity has sped up and intensified globalization, these arguments all place economics at the forefront of the analysis². Thus, they take a Western-centric view of globalization's historical trends over the long haul. As a result, the contributions of ideational factors like religion and religious actors to globalization's genesis are downplayed in an effort to present the process as a modern phenomenon. Furthermore, these arguments are semantically flawed due to the fact that Friedman, Smick, O'Rourke, and Williamson all base their ideas of when globalization began on the idea that globalization itself is a system, or a singular state not subject to varying orders of magnitude. We can express this idea with a simple heuristic: the world is either globalized or it is not. In other words, they mistake the result of the process for the result itself, and thus confuse globalization with globalized. Yale Center for the Study of Globalization's Nayan Chanda agrees, stating that "globalization is a process that has worked silently for millennia without being given a name"².

Even more so than André Gunder Frank and Barry K. Gills, the idea that globalization and interdependence started only 500 years ago is strongly opposed to them. They not only argue that this is a product of Eurocentrism, but that the first signs of globalization in the world system can be traced back to the reign of Akkadian King Sargon in the year 2450 BC. Sargon, like his modern counterparts, would have had to deal with issues of hegemony, center-periphery relations, and wealth accumulation. Hugh Liebert, on the other hand, dates the beginning of globalization to the conquests of Alexander the Great, nearly two millennia later. Liebert provides support for this claim by referring to what he terms "identity indeterminacy," or the possibility that an individual or political entity may feel loyalty to more than one identity (i.e., local versus universal). Somewhere in between these allegiances are one's identity, but when one gains traction at the expense of another, as in the case of rising global identity at the expense of national identity, territorial expansion can occur. Globalization does not always "entail the rise of a universal community," as Liebert points out. This is because expansion motivated by allegiance to two equal nations rather than to separate stratified identity sources can account for this. Whatever the case may be, Liebert considers Alexander to be only marginally a part of a number of identifying categories. Macedonia was neither Greek nor Barbarian, urban nor rural, as a political entity¹. According to Liebert, Alexander's initial conquests were motivated by his need for recognition within a culture to which he only partially belonged. This, in turn, established him as the "founder of globalization". Those who seek to globalize may be driven in part by an inability to pin down their own identities, but limiting the start of globalization to the introduction of Hellenic culture to far-flung regions of Asia ignores earlier instances of imperial expansion. Consider the argument made by Ali Farazmand and Jack Pinkowski, who claim that globalization was "conceptualized and even realized to a great extent in the ancient world by Cyrus the Great," two hundred years before Alexander the Great invaded Persia and conquered Cyrus's empire. The Achaemenid Empire was the first global power in history. At its height, the empire's military might allowed it to conquer all the way from Greece and Egypt to India, Kazakhstan, and East Turkestan (modern-day Xinjiang)¹.

Globalization, which is seen as a symbol of westernization, is frequently blamed for the current hostility between Islam and western civilization. In his book *The Clash of Civilizations*, Samuel P. Huntington highlights this conflict by arguing that cultural identity will triumph despite the secular, uniting forces of economic globalization. *Jihad vs. McWorld*, by Benjamin Barber, is another contemporary study that analyzes the seeming conflict between globalization and Islam. Here, the author depicts a struggle between conservative ideals, or "Jihad," and progressive ones, or "McWorld." Both of these books portray

globalization as synonymous with westernization and as a threat to preexisting non-Western cultures, particularly Islamic beliefs¹.

The term "globalization" has been defined in countless ways, some of which are more accurate than others. However, by piecing together information from all of them, we can better understand the phenomenon as a whole. The term "globalization" refers to the process by which states and non-state actors, such as individuals, become more politically, economically, technologically, socially, culturally, and conceptually interdependent. From ancient times to the present, globalization has resulted in the exchange and mingling of not only money, resources, goods, textiles, manufactured goods, people, plants, animals, germs, and diseases, but also ideas, cultures, and religions from all over the world. The role of non-economic actors in globalization can be better understood once we abandon an economic-centric definition of globalization and, by extension, a view of globalization limited to the modern era. Those who favor an economically focused view of globalization must still acknowledge religion's historical role as a driving force behind it. Along the Silk Road, for instance, religion and trade were both significant globalizing forces.

Homogenization and the Globalization Backlash

Homogenization has been cited as one of globalization's purported secondary consequences. The homogeneity thesis argues that as a result of globalization, there will be less of a variety of languages, religions, and cultures in the world. Friedman exaggerates when he says, "since globalization as a culturally homogenizing force is coming on so rapidly, there is serious risk that in just a few decades it might wipe out the ecological and cultural variety that took millions of years of human and biological evolution to achieve". Native American languages are being lost at a pace that rivals that of extinct species, and Scholte argues that this is erasing the cultural history of indigenous peoples. In his major book, *The Clash of Civilizations and the Remaking of World Order*, historian Samuel P. Huntington argues that all civilizations eventually collapse, merge, or perhaps become "lost in the sands of time." From a historical perspective, there have been as many as twenty-four distinct civilizations, but presently there are only eight. Friedman hypothesizes that this is because of the unification of the global market that globalization has ushered in. As a result of its "great economies of scale that reward conducting the same company or selling the same product all over the world at once," it tends to standardize consumption throughout the globe. As a result, cities formerly separated by oceans and continents now resemble one another from Qatar to Kansas thanks to the near-universal presence of chains like Taco Bell, MTV, Disney, Marriott, McDonald's, and Microsoft. Some people hold this opinion because they see the assault on culture as a byproduct of globalization, which they mistake for Americanization. Culture and morals are being eroded by the "drab and homogenous Americanized culture" of Coke and Starbucks that is characteristic of American consumer culture. Because of this, non-Western cultures are being undermined by Americanization since it "encourages people to consume American products and services".

Homogenization is a long-standing phenomenon that predates globalization and is often associated with the regional spread of hegemonic forces. Think back on the Romanization of Europe or the Islamization of Central Asia, North Africa, and the Middle East. A number of other faiths and cultures, including Christianity, Judaism, Zoroastrianism, Manichaeism, and Buddhism, all had an impact on the Silk Road and Central Asia before Islam emerged. Heretics, such as the Nestorian Christian sect, found safe haven there, while powerful states, such as the Mongolian Empire, backed policies of plurality because of the region's rich cultural variety and extensive trade routes. Yet, with the spread of Islam, one of the world's most homogenous civilizations has emerged in place of this rich variety. Central Asian culture was influenced by "charismatic Sufi preachers" and the spread of Islam due to the political authority of Muslims and their control of "trans-Asian commerce." Since "a businessman may readily assume that becoming a Muslim would improve connections and collaboration with fellow Muslim businesses both at home and abroad," as Richard Foltz puts it, Muslim economic supremacy was a major contributor to the homogeneity of Central Asia and the Silk Road. Conversion for business motives, in addition to assimilation, helps explain the cultural uniformity of the area, which was facilitated in part by the preferential treatment accorded to Muslim merchants by Muslim officials.

American Opinion on Globalization: Origins of the "Backlash"

Little research, however, has been conducted to determine whether or whether the general public's perspective on globalization-related concerns in the United States has changed. 2016 saw the rise of the

concept of a populist backlash against globalization, especially in the wake of Donald Trump's Republican presidential campaign. While third-party candidates like Ross Perot had previously expressed fiercely anti-trade views in past elections, by 2016 being "anti-globalization" refers to a broad range of anti-internationalist stances. There are two further regularities worth mentioning. First, the ups and downs in favor of international trade are unusual since they seem to be related to membership in the "in" or "out" party in the race for the US president. No matter who wins an election, the next administration will be more enthusiastic about expanding commerce abroad. Given Trump's vehement anti-trade rhetoric throughout the 2016 campaign, this trend came as a complete surprise. But, during the Trump presidency, Republicans dramatically boosted their support for international trade, even before Trump had launched his own signature trade pact. Another trend worth mentioning is that anti-globalization sentiment is unlikely to have been a deciding factor in Trump's electoral college win, since it tends to fall in popularity after an incumbent president is elected, not before. When looking for evidence of waning support for globalization-related causes, I can only find it in Republicans' growing hostility against China. But, as can be shown in Figure 6.1, these alterations in perception didn't happen until after the appearance of COVID19 in March of 2020. Notwithstanding the absence of a trend in American public opinion, the reaction against globalization has emerged as a major storyline with its own momentum in politics throughout the globe, including the United States. Journalists, academics, and political observers in the United States appear to have constructed a false narrative about the role of American public opinion in their quest to construct a grand theory of everything, one that accounts for Brexit and Trump as well as nationalist uprisings in a number of other countries. Post hoc attempts to explain these political developments seem to have fueled this notion. Yet, the story still has a significant impact on the policies that are pursued by political leaders.

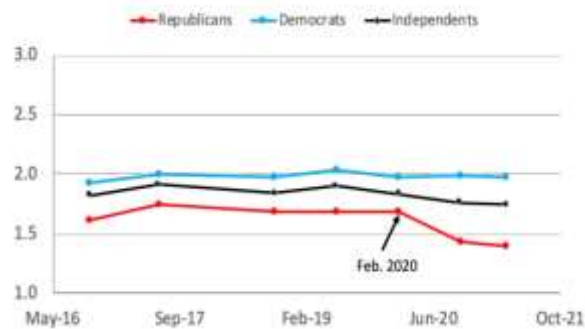


Figure 1. Support for China by Party Identification

The Modern Religious Backlash

This concept may also be shown by more contemporary instances. Experts in the 1960s and 1970s expected that secularization would accompany some of the processes of globalization (urbanization, modernisation, technical development, democracy), but the present religious comeback may make the necessity of religion appear evident. Sadly, before the Iranian Revolution, anti-American and anti-Western sentiment found fertile ground in the spread of secularism across the world. They "did not believe religion mattered in international politics" before 1979, thus foreign policy and intelligence elites could have overlooked this. Nonetheless, in an effort to modernize Iran, Reza Shah Pahlavi and his son, Mohammad Reza Shah Pahlavi, instituted a forceful top-down secularization program that alienated the nation's clerics, leading figures like Ayatollah Ruhollah Khomeini to criticize the shah's regime as unjust, corrupt, anti-Islamic, and the object of jihad, thereby rousing revolutionary discontent.

Disillusionment with what Iranian scholar Ahmad Fardid called "gharbzadegi" (globalization) and "the Westernization of the Pahlavi government" (globalization) led to a reaction against globalization and the Pahlavi administration, respectively. As its English translation, "Westoxication" (or "Gharbzadegi") suggests, "Westoxication" "conveys both intoxication—the fascination with the West" and "infection—the poisoning of westernization of an indigenous culture." Fardid first used the phrase in his lectures at the

University of Tehran; nevertheless, it did not become widely used until after the release of Jal E- Ahmad's book, Gharbzadegi. The author, E- Ahmad, set out to raise awareness of the problem of Westoxication in Iran by drawing parallels between the established West and the developing East. In it, he expresses disappointment that the East has become a market for Western goods and ideas at the expense of a two-way flow of capital, culture, and technology. He claims that Westernizing Iranian elites are corrupt, and he draws parallels between Third World economic reliance and cultural dependence on the West. According to Brad Hanson, this made Gharbzadegi "a precursor of many of the North-versus-South disputes of the 1960s and 1970s," such as the Third World's need for a new international economic system and its fight against cultural imperialism. All of this, according to E- Ahmad, can be traced back to the imposition of Western technology on Iran. He sees Western technology as oppressive and exploitative, helping to bring about Iran's subjection. To him, the greatest way to break free from the West's yoke was to stop being helpless consumers and start creating one's own technological marvels. At first glance, E- Ahmad's attempts to combat Wes's toxication would not seem to have much in common with the response to globalization given that he was a secularist. Well, that's how he would have wanted it, seeing as how his writing "dismisses religion and the ulama as a regressive and useless bulwark against Western rule." In contrast, E- Ahmad gave Islam a serious look on the hajj and had a profound internal battle that included challenging aspects of faith. Ironically, his epiphany occurred at a gathering that grew out of an earlier era of globalization, but he eventually came to see Islam as "a vital, native, non-Western part of Iranian identity with a potential for effective resistance to 'Wes' toxication,' and a potent force for inspiring indigenous opposition to Westernization¹.

Clash of Civilization:

Debates on the future of international order have been particularly contentious since the fall of the Soviet Union. The optimistic perspective holds that the conclusion of the Cold War and the victory of liberal democracy and the market economy signaled the end of history and heralded the arrival of eternal global peace. Yet in stark contrast to these perspectives, Huntington (1993) makes the daring argument that a "clash of civilizations" threatens world peace and will dominate global politics in the post-Cold War era. He concludes that the globe after the Cold War is split into seven or eight civilizations, with the fault lines between them serving as the future battlefield. Huntington's assertion has sparked a flurry of discussion and debate.

This research will present a two-pronged argument to determine how likely a "clash of civilizations" is: To begin, cultural and religious identities have increasingly been a source of political mobilization since the end of the Cold War, and the concept of a "clash of civilizations" captures this reality. Second, the "clash of civilizations" as a whole is an incorrect lens through which to view the post-Cold War international order because of the false premise that cultural identities can supersede nation-states, global capitalism, and global governance based on shared liberal values as the primary motivators of political action. It's clear that there are several factors working against and limiting the likelihood of a collision of civilizations. Moreover, the relative strength of various forces of political mobilization determines the degree to which a collision of civilizations is unavoidable. But, although cultural identity has grown in significance as a means of political mobilization in the post-Cold War era, it will not be able to supplant the other primary factors anytime soon. As a result, the likelihood of a global clash of civilizations persists.

As for the remainder of this paper, it's structured as follows. In the next section, we'll take a closer look at Huntington's insights on the clash of civilizations. It is said that in the post-Cold War era, cultural and religious identities have emerged as a significant source of political mobilization. While not to be disregarded, religious and cultural differences have contributed to some of the most serious dangers to international stability in recent years. The empirical evidence shows that the clash of civilizations approach is historically inaccurate, provides only a partial interpretation of the present, and is therefore an inadequate framework through which to predict how the international order would change after the Cold War. In the third section, we'll look at how the nation-state, global capitalism, and global governance based on shared liberal principles severely limit the influence of cultural and religious identity as a source of political mobilization. Maintaining and expanding these forces is not at all conducive to a conflict between civilizations. In Part IV, we'll take a look at the bigger picture ideas and how they apply to China. This

research argues that despite the potential for cultural and religious conflicts in China, political mobilization based on cultural and religious identities has been mostly ignored and has had little political relevance.

Improving Global Governance Based on Common Liberal Values

Huntington is very critical of the notion that the conclusion of the Cold War heralded the establishment of a single, relatively peaceful global order (Huntington, 1996). This, he claims, is an illusion, one that is too far from reality. To some extent, he is correct. Although it's true that liberal democracy hasn't prevailed everywhere and that history hasn't come to an end since the fall of the Soviet Union, it's also hard to argue that the post-Cold War political majority has been focused on strengthening US-led global governance based on shared liberal principles. Under the framework of global governance, peaceful coexistence amongst states of different cultural backgrounds is possible.

The United States established the liberal international order, the foundation for a system of global administration based on shared liberal values. As a world leader in the aftermath of World War II, the United States pushed for the establishment of multilateral organizations that "not only attracted participation but also drew democracies and market systems closer together". These international organizations, led by the United States, developed a liberal international order that allowed both existing great powers and newly independent nations to join and participate. At the end of the Cold War, this framework also served its purpose by absorbing formerly communist countries. Most of the newcomers have embraced core liberal ideas and are eager to alter their identities to fit in with the established norms. Under this framework, citizens of all backgrounds—whether they identify with the Confucian or Islamic traditions or neither—have come to see liberal democratic ideals as the political ideal of the post-Cold War period. The identity of liberal democratic polity has become the preeminent source of political mobilization on a worldwide scale, despite the fact that the existing global governance framework is far from ideal. The commitment to bettering global governance based on liberal ideals is shared by people of all cultures and religions, but there is no evidence to suggest that these differences can be overcome.

Conclusion:

In conclusion, the likelihood of a full-scale cultural war is contingent on the relative strength of various political mobilizing factors. To a far lesser extent than nationalism, global capitalism, and universal liberalism, political mobilization based only on cultural and religious identities has a presence on the global arena. Moreover, the key sources of political mobilization in post-Cold War global politics—nation-states, the global market system, and the fundamental international organizations—are all embedded in a conflict of civilizations. Clash of civilizations dominating the globe appears unlikely and far from imminent.

There is a peculiar and contradictory yet mutually supportive link between religion and globalization. By rejecting an economic-centric perspective on religion's definition, it becomes clear that religious actors play and have played a role in pushing globalization for millennia. Even though the Age of Discovery is seen as the beginning of globalization, it is important to remember that it, too, was originally envisioned as a search for "God, Gold, and Glory." Although the negative impacts of globalization on certain religious actors are well-documented and have led them to join the anti-globalization reaction, the beneficial repercussions of this phenomena on religion remain largely unexplored.

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The Role of Motherhood in the Psychological Self-Concept of Women

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Abstract-

A present paper study to “The Role of Motherhood in the Psychological Self-Concept of Women.” This study explores the role of motherhood in shaping the psychological self-concept of women in Gaya Town, a culturally rooted community in Northern Nigeria. Using a qualitative case study approach, the research draws on data collected from 60 mothers through semi-structured interviews and focus group discussions. The analysis revealed four major themes: motherhood as a source of self-worth, conflict between personal identity and maternal roles, cultural expectations versus personal aspirations, and emotional and psychological shifts post-motherhood. The findings suggest that while motherhood enhances women’s social status and internal sense of purpose, it also imposes identity constraints and emotional challenges, particularly when traditional expectations conflict with personal goals. The study concludes that the maternal role in Gaya is both empowering and limiting, highlighting the need for culturally sensitive mental health support, policy interventions, and further research into gender identity within traditional communities. This research contributes to the growing body of literature on gender, self-concept, and the socio-psychological dimensions of motherhood in Bihar.

Keywords: Motherhood, Psychological self-concept, Maternal identity, Role strain and Feminist psychology.

Introduction- Motherhood has long been regarded as a defining element of womanhood across cultures and historical contexts. From ancient times to the present, societies have assigned motherhood not just as a biological function but as a social and moral role, often seen as the epitome of female identity. But what does it mean psychologically for a woman to become a mother? How does motherhood influence a woman's perception of herself—her abilities, her worth, her role in relationships, and her broader social identity? The psychological self-concept is a person’s perception of themselves, encompassing attributes, beliefs, values, and roles. For women, this self-concept is profoundly affected by motherhood, both during the transition into motherhood and throughout the life course. It can lead to a deepened sense of purpose, fulfillment, and emotional growth. However, it can also create internal conflicts, especially when personal aspirations, societal expectations, and maternal responsibilities intersect or clash.

As modern society increasingly recognizes diverse identities and roles for women, the psychological exploration of motherhood becomes even more critical. Traditional models often idealized the self-sacrificing, nurturing mother without considering the internal complexities or emotional toll that this role might entail. With the rise of feminist psychology and gender studies, more nuanced understandings of maternal identity are emerging acknowledging ambivalence, postpartum mental health, career dilemmas, and shifts in personal autonomy.

Self-concept refers to the mental image or perception that a person holds about themselves, including their abilities, values, roles, and relationships. Psychologists like Carl Rogers (1951) emphasized the “self” as central to psychological functioning, suggesting that self-concept evolves over time through personal experiences and social feedback. In the context of women, self-concept is highly relational constructed in response to cultural roles, family relationships, and social expectations. For many women, motherhood becomes a central identity marker that reshapes not only their day-to-day lives but also their long-term self-view.

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Motherhood as a Transformative Experience- Motherhood is not merely an event; it is a psychological transition often referred to as matrescence (Stern & Bruschiweiler-Stern, 1998), akin to adolescence in its transformative potential. This phase includes hormonal changes, shifts in priorities, and restructuring of social identity. According to Mercer's (2004) *Becoming a Mother Theory*, a woman's identity changes across four stages: commitment, acquaintance, moving toward a new normal, and achievement of maternal identity. These stages mirror the internal restructuring of self-concept, from an individual to a caregiver, protector, and nurturer.

Feminist Perspectives on Maternal Identity- Feminist scholars have critiqued the romanticized, self-sacrificing image of motherhood often promoted in mainstream psychology and media. The process of becoming a mother is deeply gendered—where women internalize caregiving roles through social conditioning. Feminist theorists argue that maternal identity is not always empowering, especially when tied to patriarchal expectations or economic dependency. Adrienne Rich's *Of Woman Born* (1976) distinguishes between the institution of motherhood (socially constructed roles and norms) and the experience of motherhood (personal and psychological), suggesting that many psychological struggles of mothers emerge from this conflict between lived reality and societal ideal.

Postpartum Mental Health and Self-Perception- Psychological self-concept during and after pregnancy is closely tied to mental health. Postpartum depression, anxiety, and identity confusion are common experiences that alter how women perceive themselves. According to O'Hara and McCabe (2013), nearly 1 in 7 women experiences significant postpartum depression, which can severely impact self-esteem, maternal attachment, and the ability to function in new roles. Studies show that women often struggle with feeling “good enough” as mothers, which leads to guilt, shame, and a fragmented self-concept (Beck, 2001). These internal conflicts are intensified by unrealistic societal expectations of “perfect motherhood.”

Intersectionality: Culture, Class, and Race- The experience of motherhood—and its influence on self-concept—is not universal. Women from different socioeconomic, racial, and cultural backgrounds experience motherhood in diverse ways. For instance, working-class women may define their maternal identity in terms of resilience and survival (Nelson, 2006), while middle-class women might focus more on achievement or “intensive mothering” (Hays, 1996). Similarly, Black feminist scholars like Patricia Hill Collins (1994) argue that African-American motherhood often includes dimensions of community caretaking and resistance, shaped by a history of oppression and marginalization. These cultural variables deeply affect how women see themselves as mothers and as individuals.

Career and Role Conflict- Modern women often face role conflict between being mothers and being professionals or individuals with separate goals. The theory of role strain (Goode, 1960) explains how multiple social roles can produce stress and identity fragmentation. Research by Milkie et al. (2008) shows that women often feel torn between “being present” for their children and maintaining a sense of independence or career fulfillment. This leads to internal struggles regarding competence, self-worth, and identity balance. On the other hand, some research shows that mothers who work outside the home can experience higher self-efficacy and agency, especially when supported by family and workplace policies (Bianchi, 2000).

Attachment and Interpersonal Identity- From a psychological lens, motherhood can significantly influence a woman's attachment style and interpersonal identity. According to Bowlby's (1969) attachment theory, early caregiving experiences shape future relationships. Interestingly, research by Mikulincer & Shaver (2007) suggests that motherhood can “re-activate” unresolved attachment issues, especially in women with insecure childhood backgrounds. At the same time, developing strong maternal bonds can lead to enhanced emotional intelligence, empathy, and interpersonal sensitivity, reinforcing a woman's relational self-concept.

Motherhood and Personal Growth- While many studies focus on the stress and identity loss that can accompany motherhood, recent research emphasizes its potential for psychological growth. Tedeschi & Calhoun's (2004) theory of post-traumatic growth has been extended to motherhood, especially in cases of high-stress births or complex transitions. Many women report increased

emotional maturity, patience, and a broadened sense of life meaning after becoming mothers. According to Nomaguchi & Milkie (2003), women often experience a redefinition of priorities and values, leading to deeper self-awareness and personal fulfillment.

The role of motherhood in the psychological self-concept of women, we must examine it through multiple theoretical lenses. Several key psychological theories provide valuable insights into how identity shifts occur when a woman becomes a mother.

Erikson's Psychosocial Theory (1950)- Erik Erikson's theory of psychosocial development emphasizes identity formation as a lifelong process. For women, the stage of "Generativity vs. Stagnation" (typically occurring in adulthood) becomes particularly relevant in the context of motherhood. In this stage, individuals strive to contribute to the next generation—often through parenting or caregiving. Successful navigation of this stage fosters a sense of purpose and generativity, while failure may lead to stagnation and identity confusion. Motherhood thus becomes a psychological opportunity for generativity, self-expansion, and personal meaning.

Identity Theory (Burke & Stets, 2009)- Identity theory posits that people hold multiple identities—each tied to different roles (e.g., mother, partner, professional). These identities are organized hierarchically and activated depending on context. When a woman becomes a mother, the "maternal identity" often rises in salience, influencing her behaviors, thoughts, and sense of self. This theory explains how motherhood can either integrate smoothly into a woman's existing self-concept or create internal conflict when other identities (e.g., career) are devalued or suppressed.

Self-Discrepancy Theory (Higgins, 1987)- This theory suggests that psychological distress arises when there is a gap between the actual self, ideal self, and ought self. In the case of motherhood, many women experience discrepancies between their lived experience as mothers and societal or personal ideals of "perfect motherhood." These mismatches can lead to guilt, shame, or low self-esteem. Self-discrepancy theory helps explain why some mothers feel inadequate despite objectively doing well.

Feminist Theory and Relational-Cultural Theory- Feminist psychology challenges traditional, male-centric views of development by emphasizing that women's identity is formed through relationships (Jordan et al., 1991). Relational-Cultural Theory (RCT) suggests that human growth occurs through connection rather than separation. Motherhood, therefore, is a profound relational experience that reshapes a woman's psychological core through bonding, emotional labor, and empathy. This perspective affirms motherhood as not only a biological act but a deeply interpersonal and identity-shaping process.

Together, these theories offer a multidimensional view of how motherhood influences women's psychological self-concept—revealing it as a dynamic interplay between internal identity structures and external social roles.

Problem Statement: How does motherhood influence a woman's identity and psychological well-being in Gaya Town?

This paper aims to examine the role of motherhood in shaping women's psychological self-concept by analyzing key psychological theories, research findings, and social frameworks.

Research questions:

1. How do women redefine themselves after becoming mothers?
2. What are the emotional and cognitive shifts associated with motherhood?
3. How do sociocultural norms shape maternal identity?

Through this examination, the paper seeks to illuminate the multiple, often contradictory, dimensions of motherhood as a psychological experience and to advocate for a more inclusive, realistic, and empathetic understanding of maternal identity in both academic discourse and public policy.

Objectives: To assess the role of motherhood in shaping women's psychological self-view.

Significance of the study: Cultural specificity of the study; relevance to gender psychology and sociology.

Methodology- This study adopts a qualitative case study approach, which allows for an in-depth exploration of the psychological self-concept of women through the lens of motherhood within a specific cultural context. The case study method is appropriate for capturing the complex, lived experiences of mothers in Gaya Town and understanding how they construct and internalize their identities in relation to their maternal roles. By focusing on a single, well-defined community, the study aims to generate rich, context-specific insights that can inform broader discussions about gender, identity, and mental well-being. The research was conducted in Gaya Town, a semi-urban area in Kano State, Nigeria. Gaya was chosen due to its strong cultural emphasis on family and traditional gender roles, where motherhood is often considered central to a woman's identity and social value. Additionally, Gaya represents a typical Hausa-Fulani community with rich cultural norms that influence how motherhood is experienced and perceived. The town provides a fitting socio-cultural context to study how women reconcile personal identity with societal expectations surrounding motherhood.

Participants- The study involved 60 mothers, selected across a diverse range of ages (18–60 years), marital statuses (married, widowed, divorced, and single mothers), and socio-economic backgrounds. Efforts were made to include participants with varying levels of education and occupational statuses ranging from housewives and petty traders to civil servants and teachers to ensure a broad representation of lived experiences. Participants were required to have at least one child and to have resided in Gaya for no less than five years to ensure cultural familiarity and integration.

Sampling Method- A purposive sampling technique was employed, allowing the researcher to intentionally select participants who could provide rich and relevant information related to the research topic. In some instances, incidental (convenience) sampling was used to include participants who were available and willing to share their experiences but still met the basic criteria. The combination of both sampling methods ensured both depth and flexibility in participant recruitment, which is particularly useful in fieldwork within local communities.

Findings and Discussion- This study examined how motherhood influences the psychological self-concept of women in Gaya Town. Analysis of interview and focus group data revealed four major themes that encapsulate the relationship between maternal roles and self-perception. The study involved 60 mothers, selected across a diverse range of ages (18–60 years), marital statuses (married, widowed, divorced, and single mothers), and socio-economic backgrounds. In order to test

Table 1
Themes on the Influence of Motherhood on Psychological Self-Concept

Theme	Description	Representative Observations
Identity Transformation	Shift in self-perception and personal identity upon becoming a mother.	“Before motherhood, I focused on my career. Now, everything revolves around my child.”
Emotional Burden & Resilience	Emotional challenges of motherhood coupled with the development of resilience.	“It’s overwhelming, but I’ve become stronger. I can handle things I never imagined.”
Social Expectations & Roles	Impact of cultural and societal norms on how mothers view themselves.	“Everyone expects me to be perfect. I feel guilty when I think of my own needs.”
Support Systems & Self-Perception	Influence of family, partner, and community support on self-worth and confidence.	“With my mother’s help, I feel more capable. Without her, I feel lost.”

Table 2
Age Distribution of Respondents

Age Group (Years)	Number of Respondents	Percentage (%)	Key Characteristics Observed
18–25	10	16.7%	Early motherhood, high dependence on extended family, identity still forming.
26–35	18	30%	Balancing motherhood with career or education, strong identity shift.
36–45	16	26.7%	Experienced mothers, more emotionally resilient, active in social roles.
46–55	10	16.7%	Children more independent, more self-reflection and redefinition of roles.
56–60	6	10%	Often grandmothers or late-stage mothers, focus on legacy and self-renewal.

The distribution of respondents across different age groups reveals important variations in how motherhood influences psychological self-concept at various life stages:

1. Age Group 18–25 (16.7%)- Young mothers in this group are often still in the process of forming their personal identity. For many, motherhood came early in life, sometimes unexpectedly, leading to significant emotional and psychological adjustments. They commonly reported feeling uncertain about their future, highly dependent on family support, and struggling to balance personal goals with new responsibilities. Their self-concept was largely shaped by external validation and support systems.
2. Age Group 26–35 (30%)-This was the largest age group among participants. Women in this stage are often navigating multiple roles—caregivers, professionals, partners—which can lead to both empowerment and stress. Many reported a major shift in self-identity, with motherhood being central to how they now perceive themselves. Emotional resilience was often developing during this period, especially among those managing without stable support systems.
3. Age Group 36–45 (26.7%)- Mothers in this group typically had more experience and stability in their maternal role. They expressed stronger emotional coping skills and a clearer understanding of their identity. Many had adjusted to or embraced their maternal responsibilities and were able to reflect more critically on societal expectations. This group also exhibited a higher degree of autonomy and confidence in decision-making.
4. Age Group 46–55 (16.7%)- Participants in this group often had older or independent children. As a result, they reported a transition in their self-concept from being full-time caregivers to exploring personal interests, careers, or community engagement. There was a noticeable shift toward self-renewal and redefining their sense of purpose beyond motherhood.
5. Age Group 56–60 (10%)- The oldest group, though the smallest, provided deep reflections on motherhood across decades. These women often viewed their identity through a legacy-focused lens, finding meaning in having raised children and contributed to their families and communities. Some were also involved in caregiving for grandchildren, which added layers to their maternal identity.

Motherhood as a Source of Self-Worth- For most participants, motherhood was described as a core source of self-value. Women expressed a strong sense of pride, fulfillment, and social recognition derived from raising children, particularly when societal norms equate womanhood with motherhood.

“Before having a child, I felt like I was not complete. Now, people respect me more because I am a mother.” — Participant, 35 years old, married, four children.

This finding supports earlier research that asserts motherhood is a status-enhancing role in many African societies, including the Hausa-Fulani cultural setting of Gaya. Psychologically, this aligns with Carl Rogers’ theory of self-concept, where self-worth is shaped by external validation. In this case, motherhood provides both internal affirmation and social legitimacy, contributing positively to women’s self-esteem.

Conflict Between Personal Identity and Motherhood Roles. While motherhood was generally viewed positively, many women reported an internal conflict between their individual identity and the demands of motherhood. Participants spoke of sacrificing education, careers, or personal dreams in order to prioritize their families. “I wanted to be a teacher, but after I had my third child, I had to stop school. Now, my whole life is about taking care of others.” Participant, 28 years old, formerly in school. This tension suggests that while motherhood may provide external recognition, it can simultaneously diminish opportunities for self-expression and individual growth. Erikson’s psychosocial theory highlights this as a stage-related identity conflict, especially when societal expectations override personal goals. Such conflict may lead to suppressed ambitions or even psychological distress in some women.

Cultural Expectations vs. Personal Aspirations Cultural norms in Gaya Town heavily emphasize early marriage, large families, and a woman’s role as caretaker. These expectations were internalized by many participants but also challenged by others who desired greater autonomy or alternative life paths. “People say a woman without children is useless. But I sometimes feel I could have done more with my life if I had waited.” — Participant, 30 years old, graduate, two children.

This reveals a clash between traditional expectations and emerging modern aspirations. The internalization of these norms can result in what psychologists call cognitive dissonance—where personal desires and societal roles are in direct opposition. Women who could not fully align their personal goals with societal ideals often experienced guilt, confusion, or low self-confidence.

Emotional and Psychological Shifts Post-Motherhood- Many participants described motherhood as a transformative emotional experience, often associated with personal growth, increased emotional resilience, and a deeper sense of responsibility. However, others reported feelings of isolation, stress, or loss of self. “Motherhood made me stronger, but sometimes I feel like I have disappeared. Everything is for them, not for me anymore.” Participant, 41 years old, widow, five children.

This duality is significant. It highlights the emotional ambivalence associated with maternal roles: for some, motherhood fosters growth and maturity; for others, it triggers psychological strain. These experiences support the view that the psychological outcomes of motherhood are not universal but are shaped by contextual factors such as social support, marital satisfaction, and economic stability.

Synthesis of Themes- These themes collectively illustrate that motherhood in Gaya Town is both a deeply valued role and a source of internal tension. While it enhances a woman’s social standing and contributes positively to self-worth, it can also limit self-determination and provoke identity conflict. This complexity reflects a dynamic self-concept, shaped by cultural, emotional, and individual forces.

Conclusion- This study explored the role of motherhood in shaping the psychological self-concept of women in Gaya Town. The findings indicate that motherhood significantly influences how women see themselves, offering both emotional fulfillment and social validation. However, this role also introduces internal conflicts—particularly when personal aspirations are at odds with cultural expectations. Age significantly influenced how women in Gaya Town perceived their psychological self-concept in relation to motherhood. Younger mothers often experienced identity confusion and higher dependency, while older mothers demonstrated a more stable, reflective, and integrated self-concept. The transition from early to later motherhood appears to be marked by increasing resilience, self-awareness, and a gradual shift from role-conflict to role-integration.

Four core themes emerged: Motherhood enhances self-worth and social status. There is a conflict between individual identity and maternal responsibilities. Women experience a tension between cultural expectations and personal goals. Motherhood leads to emotional and psychological transformation, both positive and negative.

These findings underscore that motherhood is not a uniform psychological experience, but rather one that is deeply contextual, shaped by societal norms, personal circumstances, and available support systems. Understanding these nuances is critical for creating support structures that affirm women's well-being while respecting cultural contexts.

Recommendations-

1. Introduce community-based psychological counseling and support groups for mothers, especially those experiencing emotional strain or identity loss.
2. Promote programs that allow young mothers to continue their education or access vocational training, helping them balance personal development with maternal duties.
3. Partner with religious and community leaders to challenge harmful stereotypes that equate womanhood solely with childbearing, while still respecting cultural values.
4. Provide financial and emotional support for mothers without spousal backing, recognizing their increased vulnerability to psychological stress.
5. Conduct comparative studies across urban and rural areas to understand how different contexts affect maternal self-concept and identity.

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