ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 7| July 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

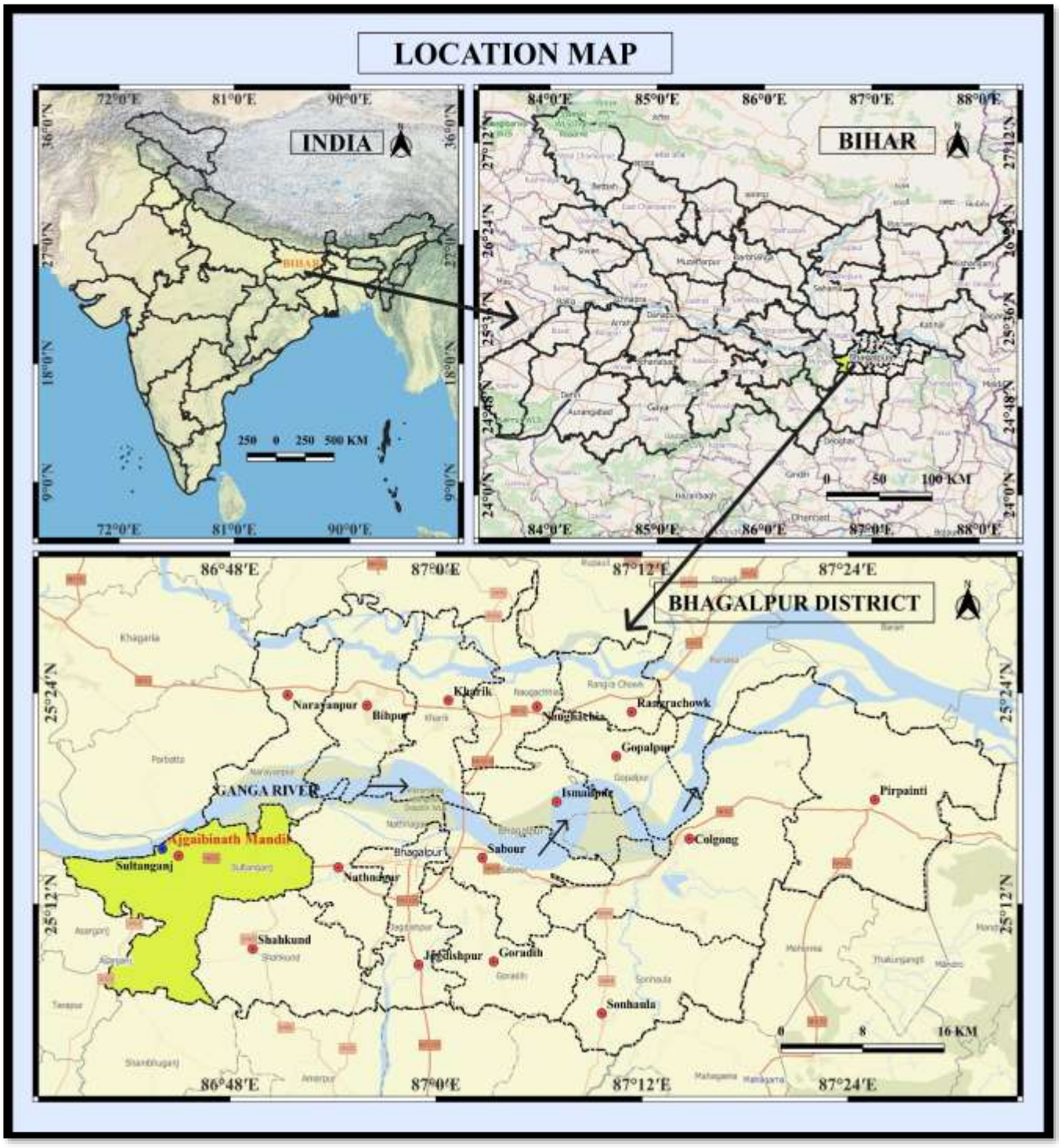


Figure 1

Route Overview of Kanwar Yatra

1. **Starting Point:** Ajgaibinath Temple, Sultanganj (Bhagalpur), Kanwariya collect holy Ganga water at the north-flowing Ganga near the ancient Ajgaibinath Temple**,**
2. **Journey Begins:** Walking Route Devotees carry the water in bamboo slings (kanwaras), chanting **"Bol Bam"**, and proceed southward toward Jharkhand.
3. **Key Intermediate Halts (on average every 8–10 km) Common stops include:**
   - **Kamrai → Asarganj → Tarapur → Rampur → Kumarsar → Chandan Nagar → Jalebiya → Suiya → Abrakhia → Katoria → Lakshman Jhula → Inaravaran → Bhulbhulaiya → Goryari → Kalakatia → Bhutbangla → Darshaniya,**
4. **Arrival – Baba Baidyanath Dham, Deoghar (Jharkhand).** The pilgrimage culminates with Jalabhishek of the Shiva Linga at Baidyanath Dham, one of India's 12 Jyotirlingas

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Table 1: Kanwar Yatra route from Sultanganj (Ajgaibinath Ghat) to Baba Baidyanath Temple, Deoghar, along with distances

Sl. No.	From	To	Distance (km)
1.	Sultanganj	Kamrai	6
2.	Kamrai	Asarganj	7
3.	Asarganj	Tarapur	8
4.	Tarapur	Rampur	7
5.	Rampur	Kumarsar	8
6.	Kumarsar	Chandan Nagar	10
7.	Chandan Nagar	Jalebiya More	8
8.	Jalebiya More	Suiya	8
9.	Suiya	Abrakhia	8
10.	Abrakhia	Katoria	8
11.	Katoria	Lakshman Jhula	8
12.	Lakshman Jhula	Inaravaran	8
13.	Inaravaran	Bhulbhulaiya	3
14.	Bhulbhulaiya	Goryari	5
15.	Goryari	Kalakatia Dharamsala	3
16.	Kalakatia Dharamsala	Bhutbangla	5
17.	Bhutbangla	Darshaniya	1
18.	Darshaniya	Baba Baidyanath Dham	1
Total			**105 km**

Source: https://deoghar.co/

LITERATURE REVIEW

Tourism research in India has evolved over the years, with studies addressing various aspects, including tourist satisfaction, seasonality, infrastructure, sustainability, and technological integration. The following review presents key studies on Bihar and other comparative regions, highlighting trends relevant to the development of cultural and pilgrimage tourism.

Mishra & Pal (2009) conducted a focused study on the Sultanganj region of Bhagalpur, Bihar, analysing tourists' satisfaction with cultural and pilgrimage destination attributes. Their findings revealed variations in satisfaction levels, underlining the need for targeted improvements in infrastructure and service delivery at religious sites. **De & Devi (2010)** examined nature-based tourism in Meghalaya. The study emphasised the influence of seasonal tourist inflows, drawing attention to the socio-economic benefits of tourism in ecologically sensitive regions. **Francois (2011)** indicates that tourism, both domestic and foreign, plays a significant role in the economic stimulus programme, particularly in times of economic hardship. **Mishra (2012)** discusses that eco-tourism provides a high scope for rural tourism and a degree of alternative employment to the local communities. **Mowforth & Munt (2015)** discuss the potential of tourism to promote sustainable development in Bihar**. Kumar (2018)** analysed foreign tourist arrivals in India, reporting an 8.23% annual growth from 1999 to 2015 and highlighting seasonal variations as key to shaping tourism policy and infrastructure planning. **Singh & et al. (2020)** studied the seasonal dynamics of tourist inflow in Bihar, significant growth in both domestic and foreign tourist arrivals, highlighting the need for infrastructure expansion and capacity building to handle the seasonal surge effectively. **Roy (2022)** analysed trends in tourist arrivals in Bihar from 2010 to 2019. The study highlighted fluctuations over the decade, pointing toward both opportunities and challenges in the state's tourism sector. **Arora (2023)** developed a tourism forecasting model by analysing trends and seasonality in tourist arrivals in Kullu district, Himachal Pradesh, and emphasised the importance of predictive modelling in tourism planning, especially in regions highly sensitive to climatic and seasonal fluctuations. **Pandey & et al. (2023)** explored the Bihar Tourism Management System's web interface, focusing on its utility in assisting travellers with lodging and vacation planning. The study revealed the growing role of digital infrastructure in enhancing tourist experience and accessibility to services. **Kushwaha (2024)** investigated tourism development at Buddhist pilgrimage sites in Uttar Pradesh and Bihar. The study revealed significant disparities in infrastructure and visitor experiences, underscoring the urgent need for cohesive planning and sustainable advancement to enhance tourist satisfaction. **Bihar Saras Mela (2025)** studied consumer behaviour at a cultural fair, identifying product quality and pricing as key factors influencing purchasing decisions.

OBJECTIVES

The primary aim of this study is to examine the seasonal dynamics of tourist inflow in Bhagalpur district with specific reference to the Sharavani Mela. The specific objectives are:

1. To analyse the seasonal variation in tourist inflow associated with the Sharavani Mela in Bhagalpur district.
2. To compare tourist volumes during the Mela period and the non-Mela period over a multi-year timeframe (2010–2024).
3. To identify the implications of observed tourist inflow trends for tourism planning, infrastructure development, and crowd management in the region.

Formulation of Hypothesis

The core hypotheses are as follows:

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- The number of tourists visiting Bhagalpur district significantly increases during the Sharavani Mela period compared to the non-Mela period.

DATA AND METHODOLOGY

This research is grounded entirely in secondary data, drawing upon annual tourist inflow statistics from 2010 to 2024, sourced from the Bihar State Tourism Department, Bhagalpur District Statistical Handbooks, and local government tourism bulletins. For each year, the total number of tourists during the Mela period (July–August) and the non-Mela period (the remaining months) was entered into SPSS. A new variable, diff, was computed to capture the year-wise difference between Mela and non-Mela tourist counts. To assess whether this difference followed a normal distribution, both the Kolmogorov–Smirnov and Shapiro–Wilk tests were conducted; with significance values below 0.05, normality was rejected. Given the non-normal distribution of the paired differences, the Wilcoxon Signed-Rank Test was employed, a non-parametric alternative to the paired t-test that ranks absolute paired differences and tests if their median deviates significantly from zero. This approach enabled the determination of whether tourist inflow during the Mela significantly differed from the rest of the year, without relying on parametric assumptions. To visualise the data through maps and diagrams, software tools such as QGIS, Paint, and MS Excel were employed for their respective purposes.

RESULTS & DISCUSSION

- **Tourist Inflow Data**

The study is based on secondary data of tourist inflow to the Bhagalpur district during both the
Mela period (July–August) and the non-Mela period (rest of the year). The data spans 15 years from 2010 to 2024 and is presented in the table below:

Table 2: Tourist Inflow in Bhagalpur District during Mela and Non-Mela Periods(2010–2024)

Sl. No.	Years	Tourist Inflow (Mela Period)	Tourist Inflow (Non-Mela Period)
1.	**2010**	260510	453660
2.	**2011**	1631376	1317458
3.	**2012**	311155	1997001
4.	**2013**	1623750	758050
5.	**2014**	2564449	931347
6.	**2015**	2898093	1036121
7.	**2016**	2908149	1193062
8.	**2017**	3167553	1068091
9.	**2018**	3545214	1063191
10.	**2019**	4443319	558525
11.	**2020**	0	108295
12.	**2021**	66	3455
13.	**2022**	2528717	183253
14.	**2023**	7708195	1469890
15.	**2024**	11303920	1828915

Source: Bihar Tourism Official Website (bihartourism.gov.in/data.html)

The data from 2010 to 2024, shown in Table 1, illustrates a seasonal pattern in tourist inflow in Bhagalpur district, with significant spikes during the Sharavani Mela period in most years. While the early years (2010–2012) show modest or even lower Mela inflow compared to non-Mela months, from 2013 onward, the Mela period consistently attracts a much higher number of visitors. Notably, the years 2019, 2023, and especially 2024 show dramatic increases, with over 11.3 million tourists recorded during the Mela in 2024. The COVID-19 pandemic severely impacted inflows in 2020 and 2021, nearly halting pilgrimage activity. Post-pandemic recovery is evident, with tourist numbers surging again. Overall, the data highlights the strong cultural draw of the Mela and its growing role in driving seasonal tourism in Bhagalpur.

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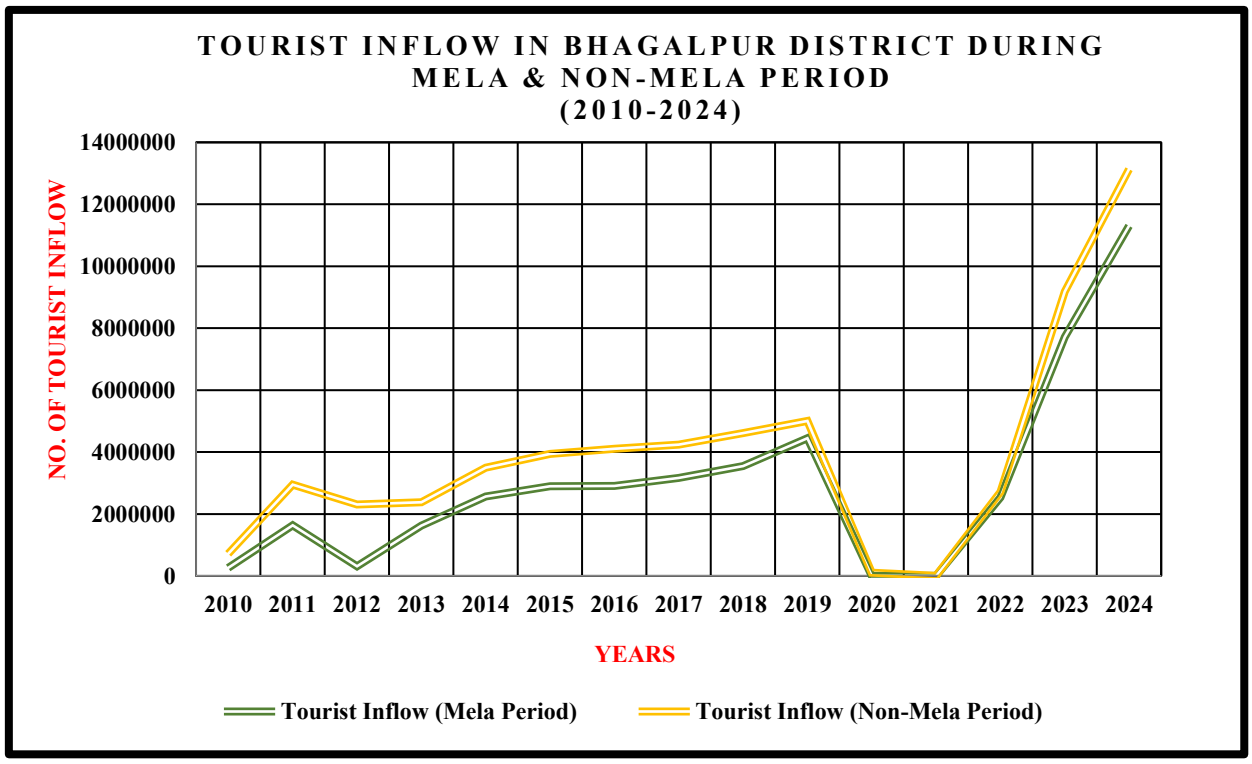


Figure 2

- **Normality Test & Selection of Statistical Method**

The descriptive statistics show that the mean of the variable **"difference between mela period and non-mela period (Diff.)"** is approximately **2,061,610.13**, with a large standard deviation (**2,789,191.10**) and a wide range (**11,160,851.00**), suggesting high variability in the data. The median (**1,715,087.00**) is lower than the mean, and the **skewness value of 1.505** indicates a **positively skewed distribution**. Additionally, **kurtosis of 2.787** suggests a **leptokurtic distribution**, meaning the data have heavier tails and a sharper peak than a normal distribution. The normality tests (Kolmogorov–Smirnov and Shapiro–Wilk) both returned **significant p-values** (0.020 and 0.033, respectively), which are **less than 0.05**. This confirms that the variable **"(Diff.)" is not normally distributed**. Therefore, instead of a parametric test, the **Wilcoxon Signed-Rank Test**, a non-parametric test, was applied to test the hypothesis.

Table 3: Summary of Normality and Skewness

Test/Statistic	Value	Interpretation
Skewness	1.505	Positively skewed
Kurtosis	2.787	Leptokurtic (heavy-tailed)
Kolmogorov–Smirnov	Sig. = 0.020	Not normally distributed
Shapiro–Wilk	Sig. = 0.033	Not normally distributed

Source: IBM Statistics version 27.0.

- **Hypothesis Testing Results**

1. Null Hypothesis (H_0): There is no significant difference in the number of tourists visiting Bhagalpur during the Sharavani Mela and non-Mela period.

2. Alternative Hypothesis (H_1): There is a significant increase in the number of tourists during the Sharavani Mela compared to the non-Mela period.

To test this hypothesis, the **Wilcoxon Signed-Rank Test** was applied to assess whether there is a statistically significant difference in tourist inflow between the Mela and non-Mela periods. This non-parametric test was chosen due to the paired nature of the data and potential deviations from normality. The test was conducted on a sample of 15 paired observations, representing tourist inflows during Mela and non-Mela periods over consecutive years. The analysis yielded the following results:

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Table 4: Summary of Wilcoxon Signed-Rank Test

Result	Value
Test Statistic	13.000
Z-value	–2.669
Asymptotic Significance (2-tailed)	0.008

Source: IBM Statistics version 27.0.

The Wilcoxon Signed-Rank Test revealed a statistically significant difference between the Mela period and non-Mela period conditions. Since the p-value is below the 0.05 threshold, we reject the null hypothesis. This indicates that there is a **significant increase in the number of tourists visiting Bhagalpur during the Sharavani Mela** as compared to the non-Mela period.

FINDINGS

The analysis demonstrates a significant seasonal shift in tourist inflow patterns in Bhagalpur district, with a notable surge during the **Sharawani Mela** period. This observation aligns with the cultural and religious importance of the Kanwar Yatra, where lakhs of devotees congregate in Sultanganj to begin their pilgrimage to Deoghar. The computed difference in tourist numbers, supported by a statistically significant Wilcoxon Signed-Rank Test, confirms that the Mela period consistently attracts a higher number of visitors compared to the non-Mela months. Notably, years like **2023** and **2024** exhibited exceptionally high Mela inflows (exceeding 7 million and 11 million, respectively), likely due to improved infrastructure, promotion by the Bihar Tourism Department, and post-COVID recovery in domestic pilgrimage tourism. These findings reinforce that religious events act as **temporal tourism magnets**, transforming the flow of visitors and temporarily overburdening infrastructure such as roads, sanitation systems, accommodation, and health services. While this surge offers economic opportunities for vendors and local businesses, it also raises concerns regarding sustainable crowd management, environmental pressure, and administrative preparedness.

Recommendations

Based on the findings, the following policy suggestions are proposed to improve tourism management during the Sharavani Mela:

1. **Strengthen Infrastructure and Services**: Enhance roads, temporary shelters, medical facilities, and sanitation services in and around Sultanganj to handle peak-season crowds.
2. **Crowd Management Systems**: Implement digital crowd-monitoring tools, emergency response units, and regulated pedestrian routes to reduce congestion and risks.
3. **Promotion of Off-Season Tourism**: Develop strategies to attract tourists in non-Mela periods by promoting Bhagalpur's silk industry, Vikramshila ruins, and river-based eco-tourism.
4. **Sustainable Tourism Practices**: Encourage eco-friendly measures, such as proper waste management, water conservation, and reducing the use of single-use plastics, during the Mela.

CONCLUSION

This study examined the **seasonal dynamics of tourist inflow** in Bhagalpur district, with a specific focus on the impact of the **Sharavani Mela** from 2010 to 2024 using secondary data. The results conclusively demonstrate that the Sharavani Mela leads to a **statistically significant increase** in tourist numbers during the Mela period compared to the non-Mela period. The findings highlight the central role of religious festivals in shaping local tourism patterns and emphasise the need for strategic planning to accommodate seasonal fluctuations.

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