

Exploring the Mediating Role of Women's Participation in the Relationship Between Rural Tourism and the Commercialisation and Preservation of Rural Culture and Natural Beauty

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Abstract

This study investigates the mediating role of women's participation in the relationship between rural tourism development and the dual outcomes of cultural-natural commercialisation and preservation in the Darjeeling-Kalimpong Himalayan region of West Bengal. Guided by the Stakeholder-Triple Bottom Line (TBL) and Ecological Modernisation-Community-Based Tourism (EM-CBT) frameworks, the research integrates economic, socio-cultural, and environmental dimensions within a unified analytical model. Study shows that women in their productive age groups are increasingly involved in homestays, local cuisine enterprises, organic agro-tourism, and other tourism-related ventures, contributing to household income and community resilience. Mediation analysis confirms that women's participation (VAF = 50.4%) transforms tourism-driven opportunities into mechanisms for cultural continuity, ecological stewardship, and livelihood diversification. Women act as cultural custodians and environmental stewards by commercialising heritage assets while safeguarding authenticity and natural beauty. Empirical evidence highlights women's strategic role as agents of inclusive development who align market incentives with conservation ethics, supporting SDGs 5, 8, 11, and 12. The study advances theory by conceptualising women's participation as both an economic and ecological force that strengthens community resilience through tourism. Rationally, it underscores the need for gender-sensitive governance, capacity-building, digital inclusion, and investment in eco-friendly innovations. Future research should adopt longitudinal and cross-regional approaches to further examine women's leadership, digital empowerment, and renewable energy integration in sustainable rural tourism.

Keywords: Cultural-Natural Preservation, Empowerment, Sustainable Development, Rural Tourism, Women's Participation.

Introduction

Theoretical Foundation for Exploring the Mediating Role of Women's Participation

Rural tourism has emerged as an important development pathway for enhancing women's socio-economic empowerment while supporting cultural continuity and environmental sustainability in peripheral and mountain regions. Through participation in homestays, craft enterprises, and heritage-based tourism, women gain opportunities for entrepreneurship, income diversification, and increased social agency (1). At the same time, women's everyday involvement in cultural transmission and natural resource supervision

positions them in a central role in sustaining rural heritage and landscapes (2). However, the benefits of rural tourism remain uneven, as women's participation continues to be shaped by structural constraints, gendered institutions, and unequal access to resources (3, 4). Existing research demonstrates that women's empowerment in rural tourism is multidimensional, encompassing economic participation, social inclusion, leadership, and environmental responsibility (5). While tourism development can commercialise local culture and nature, such processes may lead to cultural commodification and ecological degradation if they are not guided by inclusive governance mechanisms (6, 7). This body of work indicates that women's participation should be understood

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not merely as an outcome of tourism development, but as a critical mechanism shaping how tourism transforms cultural and natural resources.

Women's Participation in Rural Tourism and Empowerment

Tourism has long been recognised as a driver of rural development and gender inclusion, offering women pathways toward entrepreneurship, financial independence, and social recognition. A study on eco-tourism in Oman reveals that nature-based tourism generates substantial socio-economic benefits for local women, including employment opportunities, income generation, and infrastructure development (8). According to some studies, in rural settings, women frequently occupy central roles as entrepreneurs, hosts, and cultural mediators, transforming local resources into tourism products that strengthen community livelihoods and resilience. The study argues that when supported by community media centres and gender-sensitive outreach, digital inclusion can act as a catalyst for inclusive rural development and sustained empowerment of women (9). Evidence from various regions indicates that women's involvement in rural tourism promotes leadership, decision-making, and collective empowerment, thereby enhancing their social standing and participation in community governance (10). In the Western Himalayas, particularly among ethnic minorities such as the Lepcha, Bhutia, and Tamang, homestay tourism has become a cornerstone of gendered development (11). These women-led homestays act as both income-generating enterprises and social institutions that strengthen women's voices within patriarchal societies. (12) On the other hand, the tourism labour market is 8.1% of the overall market accessed by women in the Middle East (13). Existing research further demonstrates that participation in tourism strengthens women's confidence, builds social capital, and expands access to education, networks, and microcredit, key determinants of empowerment outcomes. At the micro level, empowerment is reflected in greater control over financial resources and enhanced self-esteem, while at the macro level, it contributes to broader social transformation, inclusive governance, and community development (14, 15).

Women's Role in Cultural Preservation through Rural Tourism

Recent research on religious tourism in Mathura-Vrindavan shows that sustainable destination development depends on balancing economic gains with environmental and socio-cultural sustainability, including the preservation of heritage sites, rituals, and local traditions. In Nepal and Botswana, women-managed homestays and community initiatives preserve indigenous architecture, rituals, and oral traditions, transforming tourism into a platform for safeguarding cultural identity (16, 17). Similarly, in Southern Africa and China, women entrepreneurs leverage local skills such as embroidery and craftwork to create sustainable tourism ventures that both celebrate and commodify cultural heritage. Research in China underscores that sustainable tourism initiatives led by cultural cohesion and authenticity, while providing livelihoods (18, 19). These efforts not only enhance women's economic roles but also embed cultural pride within tourism value chains. Women are increasingly recognised as custodians of culture within the framework of rural and community-based tourism. Studies show that women-led enterprises sustain and commercialise traditional crafts, cuisine, folklore, and heritage while simultaneously ensuring their continuity. In the Himalayan context, women's engagement in homestays transforms them into "living museums" that display traditional foodways, handicrafts, and folklore, ensuring the intergenerational transmission of local knowledge (20). Collectively, these studies highlight how women's participation transforms tourism into a mechanism for cultural continuity and community resilience.

Women, Environmental Preservation and Eco-Entrepreneurship

Environmental preservation represents another vital dimension of women's engagement in rural tourism. Women's participation enhances ecological sustainability by integrating organic farming, renewable energy, and eco-technologies, biodiversity-based homestays in the Himalayan region, such as women-led organic tea initiatives in Darjeeling, linking environmental control with livelihood diversification (21). Eco-technological training and digital inclusion further enable women to participate in climate adaptation and sustainable enterprise management (22). A study

demonstrates that tourism-induced land use transitions enhance farmers' livelihood resilience through infrastructure investment, industrial land rationalisation, and cultural land development, with diminishing returns and stronger effects in heritage-rich regions, thereby advancing land systems science and informing SDG-oriented rural planning (23). However, research also points to persistent barriers, including limited land rights, gendered labour burdens, and restricted market access, which constrain women's full participation in environmental governance (24, 25). Despite these challenges, women-led ecotourism ventures demonstrate significant potential for advancing both ecological conservation and social equity in rural areas. Studies emphasise that women's access to education, financial capital, and networks strengthens resilience against climate vulnerability and enhances their leadership in environmental management.

Balancing Cultural and Environmental Commercialisation with Preservation

The intersection of commercialisation and preservation remains a defining challenge in sustainable rural tourism. Women's involvement often mediates this balance, ensuring that economic utilisation of cultural and natural resources do not erode authenticity or ecological integrity (26). By embedding heritage values in tourism experiences, through storytelling, local cuisine, and eco-friendly practices, women convert identity and environment into valuable yet sustainable assets (27). In the Himalayan context, the fusion of organic agro-tourism and homestay models demonstrates how women transform traditional livelihoods into marketable, environmentally responsible ventures. A study found women's strong willingness to engage in income-generating, tourism-related activities, positioning Sikkim as a potential model applicable across India and globally. The literature collectively suggests that when women are given equal access to resources, education, and decision-making power, rural tourism evolves into a synergistic model, one that harmonises cultural-commercial value creation with environmental preservation and gender-inclusive growth. Empowerment effects intensify when women organise collectively and gain a voice within tourism value chains and community governance structures (28, 29).

This study aims to investigate how and to what extent women's participation in tourism enterprises and community initiatives mediates the relationship between rural tourism development and the twin outcomes of cultural-natural commercialisation and preservation. Specifically, it explores whether women's engagement acts as a transformative force that balances market-driven utilisation with the safeguarding of rural cultural heritage and ecological integrity in the Darjeeling-Kalimpong Himalayan region of West Bengal. To address this gap, the theoretical foundation for exploring the mediating role of women's participation in the relationship between rural tourism and the commercialisation and preservation of rural culture and natural beauty can be grounded in the Stakeholder-Triple Bottom Line (TBL) Alignment Theory and the Ecological Modernisation-Community-Based Tourism (EM-CBT) Integration Theory. According to the TBL perspective, sustainable tourism outcomes emerge when multiple stakeholders, including women, co-create value across economic, social, and environmental dimensions, treating cultural and natural assets as shared capital essential for long-term competitiveness and community well-being (30). In the rural Himalayas of West Bengal, biodiversity, homestays, and traditional ways of life have led to the development of inclusive tourism models (31). Women's involvement in rural tourism enterprises, heritage management, and decision-making enhances social inclusion. It strengthens cultural identity, thereby ensuring that commercialisation processes align with heritage integrity and authenticity rather than exploitation (32). Simultaneously, the EM-CBT framework posits that local authority and eco-innovation reinforce environmental preservation, with women's participation serving as a vital institutional bridge linking community norms and conservation practices (33). Rural tourism functions as a participatory system in which economic gains are reinvested into cultural conservation and environmental protection, through engaging women as active stakeholders, aligning with essential Sustainable Development Goals, particularly SDGs 5 (Gender Equality), 8 (Decent Work and Economic Growth), 11 (Sustainable Communities), and 12 (Responsible Consumption

and Production) (34). By empirically examining this mediating role in the Himalayan region of West Bengal, the study responds to calls for integrative models connecting tourism, gender empowerment, and conservation. In doing so, it contributes to a more nuanced understanding of how inclusive participation can balance livelihood enhancement with cultural continuity and environmental management, in line with sustainable development objectives promoted by UN Tourism.

Methodology

Research Design and Theoretical Foundation

Figure 1 illustrates the hypothesised research framework grounded in the Ecological Modernisation–Community-Based Tourism (EM–CBT) theory and the Stakeholder–Triple Bottom

Line (TBL) perspective. Rural Tourism Development (RTD), characterised by community participation, sustainable development, and income generation, is proposed to influence Culture–Nature Commercialisation and Preservation (CNCNP) both directly and indirectly through Women’s Participation (WP). Women’s engagement in homestay enterprises, organic farming, food and restaurant businesses, and cultural performances functions as a critical mediating mechanism that translates tourism growth into simultaneous economic valorisation and preservation of cultural and natural resources. The framework conceptualises commercialisation and preservation as complementary outcomes, reflecting women’s dual role as economic agents and custodians of cultural and ecological heritage in rural Himalayan destinations.

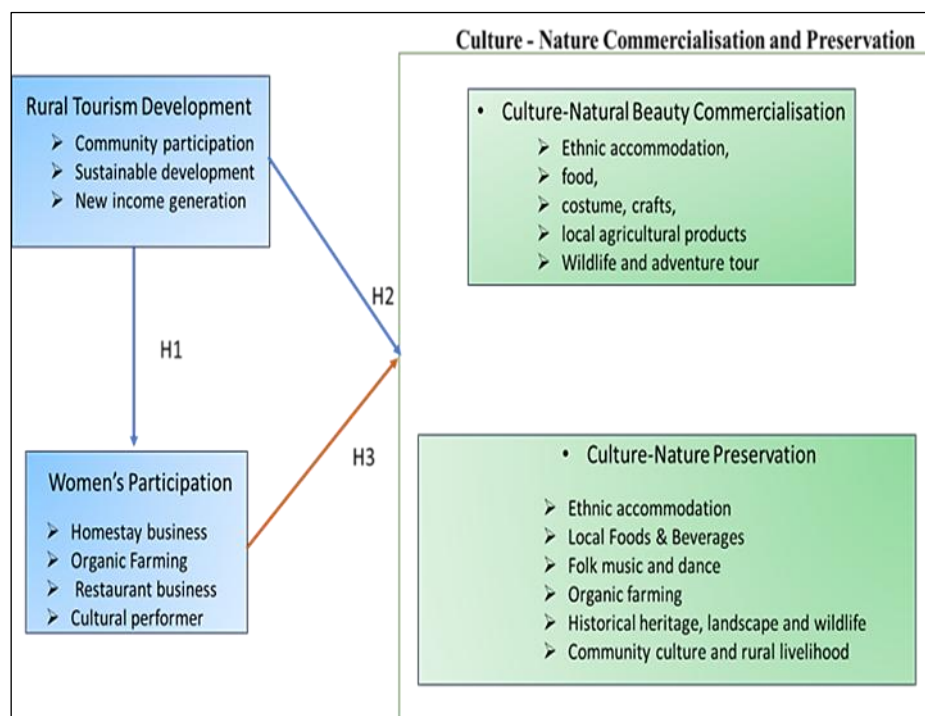


Figure 1: Conceptual Framework

Study Area and Sampling Methods

The empirical setting of this study comprised the Darjeeling and Kalimpong districts of West Bengal, India, a Himalayan hill region increasingly threatened by the pressures of mass tourism. In response, rural tourism has emerged as a key survival and adaptation strategy, encompassing homestays, agro-tourism, tea tourism, and handicraft-based multiracial cultural livelihoods. Women play a substantial yet uneven role across

these activities, reflecting both opportunities for participation and persistent structural constraints. The target population included women actively engaged in rural tourism-related activities, such as homestay management, food and catering services, craft production, and tourism facilitation. Sample adequacy was determined using a widely cited sample size estimation formula from the methodological literature (35), which indicated a minimum requirement of 384 (sample)

respondents for 551,895 (women population as per 2011 census) (36). To enhance representation and account for potential non-response or incomplete questionnaires, 400 respondents were randomly selected using a field-based random approach across identified rural tourism centres. After data screening, 384 valid responses were retained for analysis, satisfying both statistical power requirements and PLS-SEM sample size recommendations.

Data Collection and Measurement Instruments

Primary data were collected over an extended period from January 2024 to August 2025, covering multiple tourism seasons and reducing seasonal response bias. Data were gathered using a structured questionnaire administered through a schedule to ensure clarity and inclusivity, particularly for respondents with varied educational backgrounds.

The instrument consisted of two sections:

- A) Demographic and engagement characteristics of respondents; and
- B) Latent constructs measure RTD, women's participation (WP), and CNCP.

All constructs were operationalised using measures on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Minor contextual adaptations were made to reflect the Himalayan rural tourism setting while preserving content validity.

Ethical Considerations

The entire study process was conducted with ethical rigour. Before participation, all respondents gave their informed consent after being made fully aware of the study's objectives, voluntary nature, and opportunity to withdraw at any time. No personally identifiable information was recorded, and respondent confidentiality and anonymity were rigorously maintained. Standard ethical guidelines for social science research involving human subjects were followed in this study.

PLS-SEM Justification and Data Analysis

Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM), which was selected for several methodological reasons:

- A) its suitability for complex models involving mediation effects,
- B) its robustness to non-normal data distributions, and
- C) its appropriateness for theory development and prediction-oriented research, particularly in emerging fields such as gendered rural tourism systems.

Two steps were taken in the analysis. To determine reliability and construct validity, the measurement model was first assessed using indicator loadings, composite reliability (CR), average variance extracted (AVE), and discriminant validity criteria. Second, using in the bootstrapping with 5,000 resamples, the structural model was evaluated by looking at path coefficients, coefficient of determination (R²), and mediation effects to estimate the indirect effects and statistical significance of the proposed correlations.

Results

Table 1 demonstrates a general examination of the 384 women participants in tourism enterprises and cultural-natural beauty preservation initiatives, who are predominantly young adults. The majority fall within the 25–30 years (36.9%) and 35–40 years (33.8%) age groups, indicating that rural tourism activities largely attract women in their productive and economically active years. In terms of education, most participants have attained secondary (38.8%) or higher secondary (26%) education, suggesting a moderately educated group capable of engaging in tourism-related entrepreneurial and preservation activities. Occupationally, a significant proportion are involved in accommodation services such as homestays, farm stays, and camps (31.2%), followed by cuisine sellers (21.3%) and organic farmers (14.3%), reflecting a diversification of women's roles in rural tourism beyond traditional sectors. Regarding income, the majority earn between ₹10,000–₹20,000 (40.3%), followed by ₹20,000–₹30,000 (31.2%), indicating modest but stable financial gains from tourism-related enterprises. Overall, the data highlight women's growing economic engagement and empowerment through diverse tourism-linked occupations in rural areas.

Table 1: General Examination

Characteristic	Choices	No. of Respondents	%
Age	20-25	58	15
	25-30	142	36.9
	35-40	132	33.8
	40-45	52	13.54
Educational Qualification	Secondary	149	38.8
	Higher Secondary	100	26
	Graduate	50	13
	Primary level education	85	22.1
	Accommodation business (Homestay, Farm Stay, Camp)	120	31.2
Occupation	Travel Agents, guides, etc	49	12.7
	Cuisine seller	82	21.3
	Organic Farmer and farm product seller	55	14.3
	Souvenir shopkeeper	52	13.5
	Seasonal cultural performer	26	3.77
Monthly Income (in Rs)	10000-20000	155	40.3
	20000-30000	120	31.2
	30000-40000	85	22.13
	Above 40000	24	6.2

N=384

Reliability and Validity of Constructs

Tables 2 and 3 illustrate the analysis of the constructs on the extent and impact of women's participation in tourism enterprises and culture-nature commercialisation and preservation initiatives reveal strong internal consistency and reliability across all variables. The Cronbach's alpha values of .868 for Rural Tourism Development (RTD), .854 for Women's Participation (WP), and .775 for Culture-Nature Commercialisation and Preservation (CNCP) indicate high internal reliability of the items used. Items with factor loadings marginally below 0.70 (RTD8 = 0.68; CNCP7 = 0.66; CNCP8 = 0.68) were carefully examined and retained due to their theoretical relevance and contribution to content validity. Methodological guidelines indicate that indicators with loadings between 0.60 and 0.70 may be retained when composite reliability and the convergent validity are satisfactory (37, 38). In the present study, all constructs exhibit adequate AVE (> 0.50) and strong composite reliability (> 0.70), confirming acceptable measurement quality. Most of the VIFs have taken well below of 3,3, and all VIFs are well below the conservative threshold of the acceptable upper limit of 5. This confirms

that multicollinearity is not present and that common method variance is unlikely to bias the results (39, 40). It indicates a high level of agreement among respondents regarding women's active engagement in tourism-related enterprises.

Specifically, respondents strongly agreed that rural tourism has enhanced community entrepreneurship and women's participation in diverse roles such as homestay management, cuisine selling, organic farming, and handicrafts. Women's participation is particularly notable in startups, family businesses, and seasonal tourism activities, reflecting their growing entrepreneurial and economic agency. The factor loadings, all above 0.70, with AVE values above 0.5 and Composite Reliability (CR) exceeding 0.89, confirm good convergent validity. In terms of culture-nature commercialisation and preservation, women play a pivotal role in maintaining traditional practices, promoting eco-friendly livelihoods, and sustaining environmental awareness. Their involvement in organic farming, ayurvedic plantations, cultural performances, and eco-tourism activities reflects a balance between economic gain and environmental stewardship.

Table 2: Mean, SD, and Variance Inflation Factor (VIF) Values of All the Indicators

Construct	Indicators	Mean	SD	VIF
Rural Tourism Development (RTD) ($\alpha = .868$)	ERTD1: Rural tourism has increased community participation in starting new businesses	4.13	0.76	1.672
	ERTD2: Rural tourism has significantly increased women's participation.	4.05	0.69	1.776
	ERTD3: Many community members are getting stable employment directly through rural tourism initiatives	3.53	0.75	3.193
	RTD4: Community people are involved in diverse jobs in rural tourism, specifically in the restaurant and souvenir shop	3.81	0.66	3.193
	RTD5: Many community members have chosen the homestay, travel agency, restaurants, souvenir shops, etc., as their permanent business.	4.43	0.74	2.34
	RTD6: Adventure and cultural tourism have created new job opportunities,	3.96	0.65	1.796
	RTD7: Most of the villagers in tourist areas are employed through tourism directly or indirectly.	3.73	0.81	3.142
	RTD8: Many community people are engaged in farm stays, camp sites, and homestays to provide tourists with authentic rural experiences	3.96	0.81	3.142
	RTD9: Employment from rural tourism has boosted the income levels of the community.	3.74	0.58	2.267
	RTD10: Many people in the community have participated in indirect or seasonal activities in rural tourism (local cuisine, agriproducts craft sale, etc.)	3.62	1.15	1.543
	RTD11: Tourism has led to an increase in sales for traditional dresses, home decor, food items, and daily use, etc., directly increasing women participants.	3.69	0.68	1.749
Women's Participation (WP) ($\alpha = .854$)	WP1: Women's participation has increased in startups.	4.14	0.77	1.336
	WP2: Women's participation has significantly increased in family business.	4.09	0.78	1.234
	WP3: Many women members have participated in stable employment directly through homestay, farm stay, restaurant, adventure sports agencies, craft shops, etc.	3.61	0.78	1.325
	WP4: Women get a chance to be involved in diverse jobs in rural tourism.	3.94	0.83	1.642
	WP5: Many women have become organic farmers, ayurvedic planters, and floriculturists.	4.37	0.78	1.688
	WP6: local cuisine, craft, photoshoot with local costumes, etc, has created new job opportunities specifically for women homemakers and artists.	3.99	0.68	1.858
	WP7: Women are employed as travel agents, homestay business, restaurant, local agro products, and food items like pickles, honey, and wine, etc., as salespeople.	3.82	0.87	1.986
	WP8: Women showcase the rural livelihood through ethnic stay, food, and cultural performances, to provide tourists with an authentic rural experience.	3.66	1.15	2.038
	WP9: Many women in the community have participated in indirect or tourist seasonal activities through participating in cultural performances, roadside sales, daily family business, waste management, etc.	3.77	0.77	2.691
	WP10: Rural tourism has increased the demand for local cuisine, homestays, crafts, etc., providing jobs for women.	4.20	0.86	1.817
	WP11: Seasonal tourism has increased women's participation in selling organic agro products, crafts, etc., creating indirect jobs	4.08	0.93	3.193
Culture - Nature Commercialisation and Preservation (CNCP) ($\alpha = .775$)	WP12: Women's participation has increased in the tailoring and makeup arts due to the demand for traditional clothing and grooming among tourists.	3.63	0.82	2.267
	CNCP1: Women's involvement in cultural and nature tourism has led to greater recognition of the stain-free natural habitat and cultural uniqueness.	3.90	0.69	2.47
	CNCP2: Cultural tourism has provided direct employment opportunities for women as performers, artisans, and guides	4.02	1.08	2.72
	CNCP3: Tourism has increased the demand for locally made products, benefiting women artisans, farmers, and cooks	3.93	0.91	1.796
	CNCP4: Local traditions and customs are maintained and showcased due to tourist services.	3.74	0.69	1.543
	CNCP5: Women have made positive contributions to the preservation of historical sites in the area through their work as tourist guides.	3.39	0.96	4.23
	CNCP6: Women's participation has raised awareness about the importance of environmental conservation in our community	3.14	1.39	4.15
	CNCP7: Women's participation has encouraged the sustainable use of natural resources in homestays.	3.47	1.08	2.34
	CNCP8: The women have adopted better waste management practices due to the influence of rural tourism	3.52	1.14	3.87
	CNCP9: Women's participation in rural tourism has played a role in protecting local wildlife and natural habitats by promoting ecotourism, ayurvedic plantations, and organic farming, among other initiatives.	3.88	0.90	2.267
CNCP10: Organic farming, ayurvedic plantation, adventure sports and bird watching have created job opportunities for women in conservation.	4.16	0.86	3.193	

Table 3: Factor Structure and Reliability Analysis

Items codes	Factor Loadings	AVE	CR
RTD1-RTD11	0.80, 0.78, 0.74, 0.76, 0.77, 0.72, 0.70, 0.68, 0.71, 0.712, 0.832	0.57	0.90
WP1-WP12	0.82, 0.79, 0.74, 0.77, 0.72, 0.74, 0.78, 0.76, 0.81, 0.78, 0.71, 0.73	0.60	0.94
CNCP1-CNCP10	0.82, 0.78, 0.82, 0.76, 0.80, 0.76, 0.66, 0.68, 0.76, 0.82	0.61	0.89

Assessment of Discriminant Validity

The results of the discriminant validity analysis using both the Fornell-Larcker Criterion, as shown in Table 4, and the HTMT ratio, as shown in Table 5, confirm that the constructs, Rural Tourism Development (RTD), Women’s Participation (WP), and Culture-Nature Commercialisation and Preservation (CNCP), are distinct yet closely related. According to the Fornell-Larcker criterion, the square roots of the AVE values (0.755 for RTD, 0.775 for WP, and 0.781 for CNCP) are all higher than their corresponding inter-construct

correlations, establishing adequate discriminant validity. Similarly, the HTMT values between the constructs (ranging from 0.74 to 0.82) are below the accepted threshold of 0.85, indicating that while the constructs are positively correlated, they measure conceptually different dimensions. This validates that women’s participation acts as a unique mediating construct that links rural tourism development with the commercialisation and preservation of cultural and natural beauty, maintaining statistical distinctiveness while reinforcing their interconnectedness in the model.

Table 4: Discriminant Validity (Fornell-Larcker Criterion)

Construct	RTD	WP	CNCP
RTD	0.755	0.74	0.68
WP	0.74	0.775	0.70
CNCP	0.68	0.70	0.781

Table 5: Discriminant Validity (HTMT Criterion)

Construct	RTD	WP	CNCP
RTD	-	0.82	0.74
WP	0.82	-	0.77
CNCP	0.74	0.77	-

Model Analysis and the Formulation of Research Hypothesis

The proposed Mediating Research Model, as shown in Figure 2, connects Rural Tourism Development (RTD), Women’s Participation (WP), and Culture-Nature Commercialisation and Preservation (CNCP), positing that RTD influences CNCP both directly and indirectly through WP as a mediating factor. Rooted in the Sustainable

Livelihoods Framework and ecofeminist theory, the model suggests that rural tourism empowers women by utilising their Traditional Ecological Knowledge, thereby enhancing entrepreneurship, cultural preservation, and environmental stewardship. The relationships were examined using PLS-SEM in SmartPLS 4.1.0.2, ensuring reliability, validity, and robust mediation analysis. The model, as demonstrated in Table 6 holds a good fit (SRMR = 0.061; NFI = 0.921).

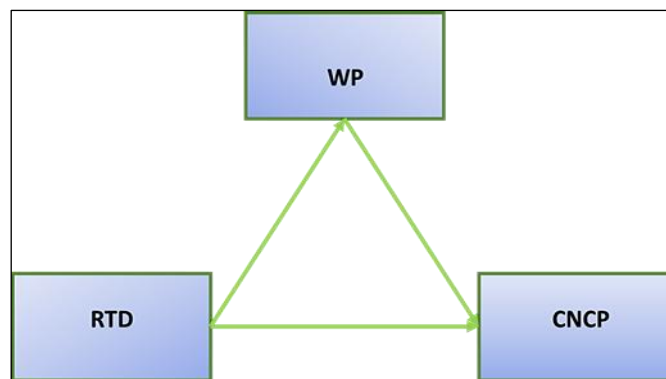


Figure 2: Mediating Research Model

Table 6: Model Fit Criteria

Fit Index	Value	Threshold	Interpretation
SRMR	0.061	< 0.08	Acceptable model fit
NFI	0.921	≥ 0.90	Good model fit

Hypotheses

Based on the proposed conceptual framework, it is hypothesised that rural tourism development (RTD) has a significant positive effect on women’s participation (WP) (H1). Furthermore, women’s participation is expected to positively influence cultural–natural commercialisation and preservation (CNCP) (H2). In addition, rural tourism development is hypothesised to have a direct positive effect on CNCP (H3). Finally, women’s participation is proposed to mediate the relationship between rural tourism development and cultural–natural commercialisation and preservation (H4).

The Mediating Effect

Figure 3 graphically presents the PLS-SEM structural mediation model to justify and visualise the hypothesised relationships among Rural Tourism Development (RTD), Women’s Participation (WP), and Culture–Nature Commercialisation and Preservation (CNCP). Figure 3 displays the standardised path coefficients, indicator loadings, and explained variance (R^2), thereby enabling an integrated interpretation of both direct and indirect effects within the model.

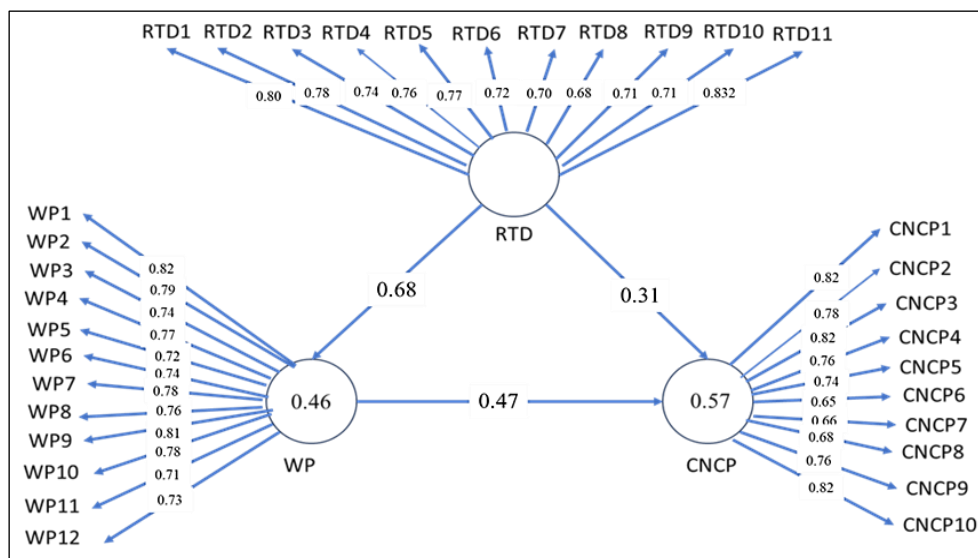


Figure 3: Structural Mediation Model

The results reported in Tables 7 and 8 confirm that Women’s Participation (WP) significantly mediates the relationship between Rural Tourism Development (RTD) and Culture–Nature Commercialisation and Preservation (CNCP). Although the direct effect of RTD on CNCP remains significant ($\beta = 0.316, p < 0.001$), the indirect effect through WP is also highly significant ($\beta = 0.322, t = 6.571, p < 0.001$), indicating that rural tourism influences cultural and environmental outcomes both directly and indirectly via women’s engagement. The VAF value of 50.4% confirms substantial partial mediation, suggesting that women’s participation explains nearly half of the total effect. Beyond statistical significance, the

results demonstrate meaningful practical relevance. The RTD → WP relationship shows a strong standardised effect ($\beta = 0.684, p < 0.001$) with a substantial effect size ($f^2 = 0.345$), explaining 46.8% of the variance in women’s participation. The WP → CNCP path exhibits a moderate effect size ($f^2 = 0.262$) and contributes substantially to the explained variance in CNCP ($R^2 = 0.572$), while the direct RTD → CNCP effect is also moderate ($f^2 = 0.187$). These findings indicate that tourism development is most effective when complemented by policies that enhance women’s participation. Interpreting effect sizes alongside R^2 values is recommended for complex social systems and helps identify priority intervention areas such

as skills training and microfinance. The R^2 values for WP (0.468) and CNCP (0.572) indicate moderate explanatory power, which is appropriate for socially embedded phenomena such as

gendered participation, cultural practices, and environmental stewardship in rural tourism contexts (41).

Table 7: Hypothesis Testing and Path Coefficients

Hypothesis	Path Relationship	β	Standard Deviation (SD)	t-value	p-value	f^2
H1	RTD → WP	0.684	0.052	13.154	0.000	0.345
H2	WP → CNCP	0.472	0.061	7.737	0.000	0.262
H3	RTD → CNCP	0.316	0.058	5.448	0.000	0.187
R² Value						
	WP	0.468				
	CNCP	0.572				

Table 8: Mediating Role of Women's Participation (WP)

Effect Type	Hypothesis/Path	Path Coefficient (β)	t-stat	p-value	VAF
Indirect Effect	RTD → WP → CNCP	0.322	6.571	0.000	50.4%
Direct Effect	RTD → CNCP	0.316	5.448	0.000	-
Total Effect	RTD → CNCP (Total)	0.638	11.240	0.000	-

Discussion

The empirical findings provide strong support for the proposed research model, demonstrating that women's participation significantly mediates the relationship between rural tourism development and the simultaneous commercialisation and preservation of cultural and natural resources in the Himalayan region of West Bengal. This result is consistent with earlier studies grounded in the Stakeholder-Triple Bottom Line perspective, which emphasise inclusive stakeholder engagement as a prerequisite for achieving balanced economic, social, and environmental outcomes (42). By empirically validating women's mediating role, the study extends these frameworks by illustrating how gendered participation functions not merely as a parallel outcome of tourism growth but as a central transmission mechanism linking development with sustainability.

Women engaged in homestays, cuisine enterprises, organic farming, handicrafts, and cultural activities emerge as key agents translating tourism expansion into sustainable socio-ecological outcomes. This finding corroborates community-based tourism and ecotourism scholarship, which highlights that locally embedded actors, particularly women, enhance stewardship, livelihood diversification, and place-based governance, thereby reinforcing cultural integrity and environmental responsibility. Similarly, the results align with evidence that cultural and

physical landscapes are primary drivers of rural tourism demand and that women sustain these landscapes through authentic heritage practices and place-specific enterprises (43).

The demographic profile of respondents further contextualises these outcomes. Rural tourism participation is dominated by women in their economically productive years (25–30 years: 36.9%; 35–40 years: 33.8%), with moderate educational attainment (secondary: 38.8%; higher secondary: 26%). This profile aligns with earlier findings that rural tourism offers flexible and accessible livelihood opportunities for women with limited access to formal employment, particularly in labour-intensive and family-based enterprises (44). Drawing on the Ecological Modernisation-Community-Based Tourism framework, the study further supports prior arguments that women function as institutional bridges connecting eco-innovation, conservation practices, and community norms. This mediating role is empirically supported by the strong effect of rural tourism development on women's participation ($\beta = 0.684$, $f^2 = 0.345$), which explains a substantial proportion of the variance in women's participation ($R^2 = 0.468$). This indicates that tourism development is a powerful structural driver of women's economic engagement. In turn, women's participation exerts a meaningful influence on culture-nature commercialisation and preservation, with a moderate effect size ($f^2 =$

0.262) and strong explanatory power ($R^2 = 0.572$). Although rural tourism development also exerts a direct influence on culture–nature outcomes, the substantial partial mediation (VAF = 50.4%) demonstrates that nearly half of this relationship is transmitted through women’s engagement. This finding aligns with prior research emphasising that intermediary social actors, particularly women, serve as conduits through which tourism-driven growth becomes socially embedded and environmentally responsible. Interpreting effect sizes alongside R^2 values further highlights the practical relevance of the results beyond statistical significance, as recommended (45, 46). At the same time, the remaining unexplained variance points to contextual constraints documented in earlier studies, including governance quality, market access, land tenure insecurity, and caste- and class-based hierarchies. The exclusion of the socio-economic equality dimension due to weak factor loadings suggests that empowerment outcomes remain uneven, particularly regarding women’s control over financial resources and entrepreneurial confidence, which matches with earlier findings that underscore the importance of understanding the behaviour of female entrepreneurs in the face of uncertainty and emerging threats (47, 48).

Our findings also suggest that the context of the country matters. Results of studies from other countries may not be comparable. Women coaches strategically use emotional labour to navigate masculine and feminine display rules, meet professional and emotional demands, and challenge restrictive gender norms, thereby advancing understanding of the gendered dynamics in coaching work (49). Substantively, the findings reinforce earlier scholarship positioning women as both economic agents and custodians of cultural and ecological heritage. Their engagement in tourism enterprises reflects a balance between income generation and sustainability goals, supporting stakeholder-oriented and community-based perspectives that emphasise inclusive participation as essential for aligning economic growth with long-term cultural preservation and environmental stewardship. These outcomes also align with prior studies linking women’s participation in tourism to broader Sustainable Development Goals related to gender equality,

decent work, sustainable communities, and responsible production (50).

Evaluation of Endogeneity, Limitations, and Prospects for Further Research

However, it is not possible to totally rule out all sources of endogeneity, even though the study used robustness diagnostics suitable for PLS-SEM, such as collinearity assessments and procedural treatments for common technique bias. The use of external instrumental variables was not feasible due to the cross-sectional nature of the survey data and the absence of theoretically strong and exogenous instruments in the rural tourism context. Consequently, while the results indicate a stable and statistically significant mediating role of women’s participation, causal interpretations should be made with caution. Future research could strengthen causal inference by adopting longitudinal designs, quasi-experimental approaches, or policy- and infrastructure-based instruments to examine the dynamic trajectory of rural tourism development, women’s empowerment, and culture–nature commercialisation and preservation over time.

Conclusion

This study aims to empirically conceptualise women’s participation not merely as an outcome of rural tourism development, but as an active transmission channel through which tourism growth translates into sustainable socio-ecological outcomes. Unlike earlier studies that examined tourism development, gender participation, and conservation outcomes resulting in isolation, this research demonstrates how women function simultaneously as economic agents, cultural custodians, and environmental stewards. The findings thus reposition women at the centre of sustainable rural tourism systems, particularly in fragile Himalayan contexts where development pressures and conservation priorities coexist. From a practical standpoint, the study underscores that rural tourism initiatives yield the greatest sustainability benefits when accompanied by targeted policies that enhance women’s participation. Which also supports the earlier study, such as Kinnaur in Himachal Pradesh, destination managers should leverage creative tourism by diversifying culturally rooted experiences, strengthening local capacity through

guide training, and strategically positioning the region as a distinctive, culturally immersive alternative to established destinations. Interventions such as skills development, access to microfinance, institutional support for women-led enterprises, and inclusive governance mechanisms are essential for aligning tourism-driven economic growth with long-term cultural preservation and environmental stewardship. These insights offer valuable guidance for policymakers, development practitioners, and tourism planners seeking to design gender-responsive and sustainability-oriented rural tourism strategies. Despite its contributions, the study has certain limitations that also indicate promising directions for future research. The cross-sectional design restricts causal inference and the ability to capture dynamic empowerment processes over time. Future studies should therefore adopt longitudinal and mixed-method approaches to explore evolving trajectories of women's participation, behavioural change, and socio-ecological outcomes in rural tourism systems. Further research may also incorporate additional contextual variables—such as governance quality, digital inclusion, market access, and social stratification—to better explain variations in empowerment outcomes. Moreover, comparative studies across different mountain and rural tourism regions would help validate the generalizability of the proposed mediation framework and reveal context-specific pathways through which women's participation shapes sustainability outcomes. Exploring the role of emerging technologies, digital platforms, and institutional innovations in strengthening women's entrepreneurial agency and decision-making power also represents a fruitful avenue for future inquiry. In conclusion, this study contributes to both theory and practice by demonstrating that empowering women is not only a social imperative but also a strategic pathway for achieving sustainable, resilient, and inclusive rural tourism development. By positioning women as transformative agents within tourism systems, the research offers a forward-looking framework for aligning economic development with cultural integrity and environmental responsibility in rural and mountain destinations.

Abbreviations

RTD: Rural Tourism Development, WP: Women's Participation, CNCP: Culture–Nature Commercialisation and Preservation, TBL: Triple Bottom Line, EM–CBT: Ecological Modernisation–Community-Based Tourism, ICT: Information and Communication Technology.

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Author Contributions

Runa Das: corresponding author, primary conceptualization, research design of the study, coordinated the execution of the research, writing, revision, Amrik Singh: supervised the overall research work, critical guidance throughout the study, Harmanpreet Kaur: data collection, assisted in data analysis, interpretation of results, Narender Suhag: data collection, assisted in data analysis, interpretation of results, Kankan Roy: data collection, assisted in data analysis, interpretation of results. All authors reviewed, edited, and approved the final version of the manuscript.

Conflict of Interest

The authors declare that they have no conflicts of interest, financial or non-financial. Their involvement in this research is academic, and the research is intended to contribute to the advancement of knowledge in this field.

Declaration of Artificial Intelligence

(AI) Assistance

The authors utilised an AI language model (Grammarly, GPT-5.1) to aid in language editing. All research design, literature review, data collection, data analysis, interpretation of results, and conclusions are the sole responsibility of the authors, who carefully constructed and approved the final text.

Ethics Approval

Formal ethics approval was not mandatory for this study because participants were not subjected to interventions, any invasive procedures, or any other forms of risk, and data collection involved anonymised and non-sensitive information.

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