

Gender Norms and Entrepreneurial Persistence among Women Tourism Entrepreneurs in the North Indian Himalaya



Mohd Rafee¹, Tsewang Dolma², Stanzin Khenrab³

^{1,2}Department of Commerce and Management, University of Ladakh, India

¹mohd.rafee@uol.ac.in

²tsewangdolma8696@gmail.com

³Krishi Vigyan Kendra-Leh, University of Ladakh, India

³khenrab@skuastkashmir.ac.in

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Abstract: This study examines gender norms, entrepreneurial barriers and entrepreneurial persistence among women tourism entrepreneurs working as adventure guides in Ladakh, North India.

Using survey data collected from 346 respondents - women adventure guides, male guides, tourism managers and women tourists across Leh, Nubra, Zaskar and Kargil - the study employs descriptive statistics, one-way ANOVA, hierarchical regression and structural equation modelling to examine entrepreneurial participation, barriers, business sustainability and career continuity.

Women guide continue to face income inequality, harassment, limited organizational support and social barriers that constrain long-term persistence. Social support, family approval and income stability emerged as the strongest predictors of entrepreneurial persistence, while women-only tour formats independently improved perceived safety and professional confidence.

The study contributes quantitative evidence on entrepreneurial persistence in Himalayan adventure tourism and develops a framework linking gender norms, social support, economic viability and institutional barriers to long-term entrepreneurial continuity in remote mountain destinations, thereby connecting gender-inclusive workforce participation to wider debates on socially sustainable tourism.

Keywords: women tourism entrepreneurship, entrepreneurial persistence, adventure tourism, gender norms, sustainable tourism.

JEL Classification: Z31; J16; L26; Q01; R11.

Introduction

Adventure tourism in Ladakh, North India - encompassing trekking, mountaineering, rafting and expedition travel - has become an important source of employment and workforce participation in the regional tourism economy. The landscape of snow-laden passes, Buddhist monasteries and stark desert valleys draws a clientele seeking precisely the physical and psychological challenge that extreme terrain provides and this clientele is diversifying rapidly. Women now account for approximately 38% of adventure-tourism participants in Ladakh (Ladakh Tourism Department, 2023) and the proportion of solo or group women travellers requesting women-specific guide services has grown measurably since 2018. Yet the occupational structure of guide services has barely begun to reflect this demand shift. Women constitute an estimated 12-15% of certified trekking guides in Ladakh, a proportion that lags behind both the growth in women's tourism participation and the broader global trend toward gender diversification in outdoor recreation leadership (Adventure Travel Trade Association, 2022).

Despite the expansion of women-owned tourism enterprises, women remain underrepresented in frontline adventure-tourism occupations such as trekking and expedition guiding. This underrepresentation raises concerns regarding entrepreneurial inclusion, retention, workplace safety and career sustainability. The low participation of women in adventure guiding reflects persistent workplace inequalities, limited organizational support and traditional gender expectations (Rosado Varela and Medina-Argueta, 2025), it both reflects and reproduces a set of gender norms that assign outdoor mobility, physical risk tolerance and leadership authority to men, while confining women's legitimate occupational sphere to domestic and care-adjacent roles. Understanding how women who enter guiding navigate, contest and partly transform these norms is both a theoretically interesting problem in gender sociology and a practically urgent one for policymakers seeking to democratise economic participation in Ladakh's tourism economy.

The women-only tour format - tours designed for and by women, marketed on safety and solidarity and led exclusively by women guides - represents a significant institutional innovation: it simultaneously creates a market for women's guiding labour and a social context in which traditional norms of public feminine immobility are systematically challenged (Nguyen and Nguyen, 2025). Beyond workforce participation, the inclusion of women in adventure tourism relates directly to broader questions of social sustainability, equitable employment and inclusive tourism development in geographically peripheral regions. Women guides may also be viewed as micro-entrepreneurs who independently market services, build client networks, generate income and sustain tourism careers within a challenging institutional environment. While prior tourism studies have documented the barriers women face in tourism enterprises, less attention has been paid to the mechanisms through which women sustain entrepreneurial careers in remote mountain destinations. This study therefore develops and tests an entrepreneurial persistence perspective that links gender norms, social support and economic viability to long-term career continuity.

The study addresses five research questions. First, what is the quantitative profile of women trekking guides in Ladakh in terms of demographics, income, employment conditions and career persistence and how does it compare with that of their male counterparts? Second, how do different stakeholder groups - women guides, male guides, tourism managers and women tourists - differ in their attitudes toward gender norms in the guiding profession? Third, which workplace, social and organizational factors most strongly influence women guides' career persistence and which barriers most significantly constrain it? Fourth, do women-only tours independently predict changes in participants' and guides' safety perceptions and sense of agency, controlling for other factors? Fifth, what are the implications of workplace inclusion and organizational support for women's long-term participation in tourism enterprises?

Research Hypotheses

H1: Gender-inclusive attitudes positively predict women guides' career persistence.

H2: Social support from family, peers and tourism organizations positively predicts career persistence.

H3: Income stability positively predicts career persistence among women guides.

H4: Workplace and social barriers negatively predict women guides' career persistence.

H5: Career persistence positively predicts perceived safety and professional confidence among women guides.

H6: Career persistence positively influences role-model effects for younger women in the local community.

H7: Participation in women-only tours improves perceptions of safety among participants.

H8: Participation in women-only tours improves women guides' professional confidence and workforce participation.

1. Literature Review

1.1. Gender and Occupational Segregation in Tourism

The tourism sector globally exhibits pronounced occupational gender segregation: women dominate lower-paid, care-adjacent roles (housekeeping, food service, retail) while men predominate in technical, managerial and outdoor-leadership positions (Baum, 2013, UNWTO, 2019, Santos, 2023). Kinnaird and Hall's (1996) early feminist political economy of tourism argued that this distribution is not a technical outcome of skill differentials but a social construction in which tourist-space norms mirror and amplify the gender ideologies of host and guest societies. Subsequent work has largely confirmed this assessment while refining the mechanisms: Alarcón and Cole (2019)

demonstrate that the gender wage gap in tourism enterprises is larger than in comparable non-tourism sectors even after controlling for hours, education and experience, suggesting active employer discrimination rather than compositional differences. Recent studies likewise show that women in tourism experience limited access to leadership positions, lower income stability and reduced organizational support relative to men, particularly in adventure and outdoor segments (Khoo *et al.* 2024, Altinay *et al.* 2026). Inclusive workplace policies, mentorship and supportive organizational environments are repeatedly identified as conditions that improve women's long-term participation and leadership representation (Brandão *et al.* 2020, Domínguez Vila *et al.* 2025, Stylianou *et al.* 2025).

Adventure tourism represents one of the most gender-segregated segments of the tourism workforce. Frohlick (2006) documented that mountaineering and extreme-trekking communities deploy a discourse of 'toughness' and 'rationality' that is tacitly gendered male, using the language of risk tolerance and physical performance to naturalise masculine leadership. The 'outdoor recreation gender gap' has been extensively documented in Western contexts (Laurendeau and Sharara, 2008, Hargreaves, 2013), but its operation in non-Western - specifically Himalayan - settings, where gender norms are rooted in distinct religious-cultural traditions and colonial-era administrative legacies, has received much less sustained quantitative attention.

1.2. Women's Mobility, Safety and Public Space

Feminist geography's conceptualisation of gendered mobility constraints (Hanson and Pratt, 1995, Massey, 2013) provides the vocabulary for understanding why women's occupation of outdoor, remote and physically challenging tourism spaces is not merely an employment question but a spatial one. Valentine (1989) demonstrated that women's movement through public and semi-public space is systematically constrained by the anticipation of male violence, a finding replicated across cultural settings, including India (Phadke, 2007, Goel, 2023) and, more recently, Himalayan tourism corridors (Ali *et al.* 2025).

The women-only tour format addresses this constraint both instrumentally - by removing the threat of harassment through group composition - and symbolically, by constituting an exclusively female claim on wilderness space. Cole (2018) studied women-only adventure tourism in Southeast Asia and found significant pre-to-post-tour gains in participants' self-reported confidence in physical environments, a result the present study quantifies in the Ladakhi context through a safety-perception scale. Frohlick's (2006) argument that women in mountaineering must balance social expectations against the physical demands of guiding work resonates with interview evidence on Himalayan women guides (Namgail *et al.* 2007, Ali *et al.* 2025) and informs the present measurement of gender-norm attitudes. Workplace safety and perceived security are increasingly recognised as determinants of women's entrepreneurial retention in tourism operating in remote, outdoor environments (GSMA, 2020, Sun and Lu, 2025).

1.3. Women's Entrepreneurship and Leadership in Himalayan Tourism

Scholarship on women's economic participation in Himalayan tourism is growing but remains predominantly qualitative and small-scale. Adams (2014) documented Sherpa women's roles in the trekking economy of Nepal's Khumbu region, noting that women's labour was systematically undervalued and their public presence in mixed-gender guiding contexts was discouraged by both local custom and foreign trekking-agency preferences. Gurung and Seeland (2008) examined women's participation in community-based eco-tourism and found that economic empowerment through tourism was genuine but fragile - conditional on male household members' approval and on the physical separation of tourism roles from domestic obligations. Movono and Dahles (2017) extended the analysis to Pacific Island contexts, finding that tourism enterprise improves women's relative income and social status but does not automatically translate into leadership recognition. Recent work suggests that women's leadership and entrepreneurial participation are strongly shaped by access to social networks, digital visibility, organizational support and local institutional structures (Stylianou *et al.* 2025, Altinay *et al.* 2026), with digital platforms emerging as important tools for professional networking (Khoo *et al.* 2024).

For Ladakh specifically, Aggarwal (2004) and Butcher (2015) provide historical-anthropological accounts of women's social roles within the region's Buddhist social structure, which differs from Hindu patriarchal systems in permitting relatively greater public participation for women, while still confining authority largely to domestic and monastic spheres. Bhatt and Kalkundiya (2025) highlight the growing role of women-led self-help groups and digitally mediated economic participation in the Himalaya. Nonetheless, quantitative research examining women's participation in trekking and adventure-guiding occupations in Ladakh remains extremely limited. The present study addresses this gap by examining workforce participation, career persistence and workplace inclusion among women guides in Ladakh's adventure tourism sector.

1.4. Gender-Norm Measurement: Scales and Frameworks

Quantitative measurement of gender-norm attitudes has relied on several established instruments. Klugman *et al.*'s (2014) voice-and-agency framework operationalises norm liberalism as attitudes toward women's decision-making autonomy, freedom of movement and right to economic participation. Kabeer's (1999) framework identifies three dimensions of empowerment - resources, agency and achievements - that map onto the present study's constructs of income, career persistence and role-model effects, respectively. Hofstede's (2001) masculinity-femininity dimension provides a comparative frame for occupational gender norms: India's relatively high masculinity index contextualises expectations of occupational segregation, while Ladakh's distinct Buddhist cultural setting complicates simple national generalisations.

The Gender Role Attitude Scale (GRAS) developed by King and King (1997) and subsequently refined by Kollmayer *et al.* (2018) provides the measurement foundation for the present attitude battery. The GRAS assesses respondents across subscales of physical-capability equality, social acceptance of non-traditional gender roles, leadership attribution and safety/risk perception - subscales directly applicable to the guiding context. Adapted items from Kabeer (1999) and Klugman *et al.* (2014) complement the GRAS to capture income-legitimacy and agency constructs. To our knowledge, this is the first application of this combined measurement framework to Himalayan adventure-tourism guiding.

1.5. Entrepreneurial Persistence: Conceptual Definition and Boundaries

Because the central construct of this study is entrepreneurial persistence, it is necessary to define it precisely and differentiate it from related but distinct concepts. Following Gimeno *et al.* (1997) and DeTienne *et al.* (2008), we define entrepreneurial persistence as the sustained behavioural commitment of an entrepreneur to continue operating a venture over time despite institutional, social and economic adversity and despite the availability of alternative occupational options. Persistence is therefore a longitudinal, behavioural outcome - the continuation of the activity itself - rather than a prior cognitive state or a single survival event.

This definition allows persistence to be distinguished from three neighbouring constructs with which it is frequently conflated. First, entrepreneurial intention (Krueger *et al.* 2000) is a pre-entry cognitive disposition - the stated plan to start or continue a venture - whereas persistence concerns realised continuation behaviour after entry. Second, entrepreneurial resilience (Bullough and Renko, 2013) denotes the psychological capacity to absorb and recover from adverse shocks, resilience is an antecedent trait that may enable persistence, but the two are not identical, since a resilient individual may nonetheless choose to exit. Third, business survival is an objective firm-level status (the venture has not closed) that can persist through inertia, sunk costs or absence of alternatives, persistence, by contrast, is an agentic, individual-level commitment that may continue even when formal survival metrics are marginal and that captures the active decision to remain in the occupation. In the present context, persistence is operationalised as a composite of continuation behaviour and forward career trajectory among women guides and is modelled as a function of gender-norm liberalism, social support, income stability and institutional barriers (Section 1.6).

1.6. Entrepreneurial Persistence Framework

Building on the definition above and on social-support theory in gendered entrepreneurship, we propose that entrepreneurial persistence among women tourism entrepreneurs is shaped not only by economic resources but also by social legitimacy, family support and access to professional networks. In remote tourism economies these factors are especially salient because market opportunities are constrained by geography, seasonality and cultural norms. The framework specifies that gender-norm liberalism, social support and income stability positively influence persistence, while institutional barriers reduce it and that sustained persistence in turn contributes to professional confidence, safety perceptions and role-model effects within local communities. This framework is tested empirically through the structural equation model reported in Section 3.9.

1.7. Research Gap

Three gaps motivate this study. First, existing research documents women's participation in and barriers to, tourism enterprise but devotes limited attention to entrepreneurial persistence among women in remote mountain economies. Second, little is known about how gender norms, social support and economic viability jointly influence long-term career continuity. Third, women-only tourism formats have received limited quantitative evaluation despite their growing importance as both market innovations and mechanisms for expanding women's entrepreneurial participation.

2. Methodology

2.1. Research Design

The study uses a quantitative cross-sectional survey design to examine entrepreneurial experiences, business sustainability and entrepreneurial persistence. A cross-sectional design is appropriate for the study's primary aim - establishing the current distribution of gender-norm attitudes, career indicators and barrier perceptions across a stratified sample - while its limitations for causal inference are acknowledged and partially addressed through the theoretically specified structural equation model. A comparative multi-group design assesses attitudinal differences across the four respondent categories, enabling simultaneous examination of supply-side perspectives (guides, managers) and demand-side perspectives (women tourists).

2.2. Sampling Strategy

The target population comprised four sub-populations: (a) women who had worked as certified or semi-certified trekking guides in Ladakh for at least one full season (minimum 60 working days), (b) male trekking guides matched approximately for experience level, (c) tourism-agency managers and owners with hiring authority over guiding staff and (d) women tourists who had participated in at least one guided trek or adventure activity led by a woman guide or in a women-only format in Ladakh in the two preceding seasons. Stratified random sampling was used for sub-populations (a) and (b), drawing from the registration lists of the Ladakh Mountaineering and Tourism Guide Association (LMTGA) and the LAHDC tourism register, with a snowball extension for informal-sector guides not formally registered. Sub-populations (c) and (d) were reached through purposive sampling, with agencies and tourists contacted through Leh-based trekking-agency networks and traveller-review databases, respectively. The final sample of $N = 346$ was achieved from 388 approaches, yielding a response rate of 89.2%.

2.3. Instrument Design

The questionnaire comprised five sections. Section A covered the demographic profile (14 items). Section B measured gender-role attitudes using a 28-item adapted GRAS battery on a five-point Likert scale (Cronbach's $\alpha = 0.86$ overall, subscale alphas 0.71-0.89). Section C assessed career profile, income and employment conditions for the guide sub-groups (18 items, mixed interval and ordinal formats). Section D administered a barrier inventory (nine barriers rated on a five-point severity scale, $\alpha = 0.82$). Section E asked women-tourist respondents about pre-to-post-tour safety-perception change and agency empowerment using a 12-item scale ($\alpha = 0.84$). Content validity was established through expert-panel review (three gender-studies scholars, two LMTGA officials and one NGO specialist in women's economic empowerment). Face validity was confirmed through a bilingual (Hindi/Ladakhi) pilot administration to 28 respondents. All items were translated into Hindi and Ladakhi Bodhi, with independent back-translation to verify equivalence.

2.4. Data Collection

Prior to participation, all respondents were informed of the purpose of the study and their right to voluntary participation. Informed consent was obtained verbally before the survey interviews and participants were assured of confidentiality, anonymity and the exclusively academic use of the data. Data were collected between November 2024 and January 2025 by five trained enumerators: three women (fluent in Ladakhi, Hindi and English) and two men (for interviews with the male-guide comparison group). The use of female enumerators for all women-guide and women-tourist interviews followed evidence that gender matching on sensitive topics improves disclosure quality (Groves *et al.* 2011). Interviews averaged 44 minutes and were conducted in participants' preferred language. All data were double-entered into SPSS within 48 hours of collection, with 100% verification.

2.5. Measurement Model: Latent Variables, Reliability and Validity

Because several constructs in the structural model are latent, the measurement model was specified and evaluated before estimating structural paths, following the two-step procedure of Anderson and Gerbing (1988). Six reflective latent constructs were operationalised from multiple observed indicators: Gender-Norm Liberalism (six GRAS items), Social Support (six items spanning family, peer and agency support), Income Stability (three items: income level, seasonal coefficient of variation and income-legitimacy perception), Institutional Barriers (nine barrier-severity items), Career Persistence (five continuation and trajectory items) and the two outcome constructs, Safety-Perception Change (four items) and Agency Empowerment (four items). Each indicator was assigned to a single latent factor and factor variances were fixed to unity for identification.

Confirmatory factor analysis (maximum likelihood, AMOS 27) was conducted to assess the measurement model prior to hypothesis testing. Internal-consistency reliability was satisfactory for all constructs, with composite reliability (CR) ranging from 0.79 to 0.91 and Cronbach's α from 0.74 to 0.89, all exceeding the 0.70 threshold (Hair *et al.* 2019). Convergent validity was supported: all standardised factor loadings exceeded 0.60 and were significant at $p < .001$ and the average variance extracted (AVE) for every construct exceeded the 0.50 criterion (range 0.52–0.68). Discriminant validity was established using the Fornell-Larcker criterion - for each construct the square root of the AVE exceeded its correlations with all other constructs - and corroborated by heterotrait-monotrait (HTMT) ratios, all of which fell below the conservative 0.85 threshold. The measurement model exhibited acceptable fit ($\chi^2/df = 1.84$, CFI = 0.958, TLI = 0.949, RMSEA = 0.049, SRMR = 0.058), justifying progression to the structural model reported in Section 3.9. Common-method bias was assessed via Harman's single-factor test, in which the first unrotated factor accounted for 24.7% of variance (below the 50% threshold), indicating that common-method variance is unlikely to threaten the findings.

2.6. Analytical Methods

Descriptive statistics (means, standard deviations, frequencies) were computed for all variables. Between-group attitudinal differences were assessed using one-way ANOVA with Tukey HSD post-hoc tests across the four groups. Independent-samples t-tests with Cohen's d effect sizes compared women and male guides on income and employment metrics, with Welch correction applied where Levene's test indicated unequal variances. Pearson correlations examined bivariate relationships. Hierarchical multiple regression (dependent variable: career-persistence score, log-transformed) was conducted with women guides only ($n = 118$), entering predictors in four theoretically ordered blocks. The structural equation model (maximum likelihood, AMOS 27) tested the hypothesised framework, with model fit assessed via χ^2/df , CFI, TLI, RMSEA and SRMR and bias-corrected bootstrap confidence intervals for indirect effects (2,000 resamples). Statistical significance was set at $\alpha = .05$ throughout.

3. Results

3.1. Demographic Profile

Table 1 presents the demographic profile of the 346 respondents. The largest age cohort is 26–35 years (37.0%), reflecting the physical-demand profile of the sector. Among women guides, the predominance of the 2–5-year experience band (41.5%) indicates a growing but still early-career workforce, while the graduate-level education rate (47.4%) is consistent with the increasing formalisation of certification requirements.

Table 1. Demographic Profile of Respondents (N = 346)

Characteristic	N	%	Cumulative %	χ^2 / F
Age group				
18-25 years	76	21.9	21.9	F(3,342) = 5.14*
26-35 years	128	37.0	58.9	
36-45 years	94	27.2	86.1	
46+ years	48	13.9	100.0	
Education level				
Below matriculate	29	8.4	8.4	$\chi^2(3) = 22.87^{***}$
Matriculate / higher secondary	89	25.7	34.1	
Graduate	164	47.4	81.5	
Postgraduate and above	64	18.5	100.0	
District / region				
Leh (urban core)	172	49.7	49.7	$\chi^2(3) = 13.41^{**}$
Nubra Valley	84	24.3	74.0	
Zaskar	59	17.1	91.1	
Kargil / other	31	9.0	100.0	
Respondent category				
Active women trekking guides	118	34.1	34.1	
Tourism managers / agency owners	72	20.8	54.9	
Male guides (comparison group)	87	25.1	80.1	
Women tourists (participants)	69	19.9	100.0	

Characteristic	N	%	Cumulative %	χ^2 / F
Years of experience (guides only, n = 118)				
< 2 years	32	27.1	27.1	
2-5 years	49	41.5	68.6	
> 5 years	37	31.4	100.0	F(2,115) = 8.22**
TOTAL	346	100.0	-	

*Note: ** $p < .05$, $p < .01$, * $p < .001$. Chi-square values test distributional uniformity within categories, F-statistics test between-group mean differences on experience-related outcomes. Experience rows are restricted to the women- and male-guide sub-samples.

3.2. Gender-Role Attitude Scale: Item-Level Results

Table 2 reports mean scores on the ten core Likert items by respondent group. Three patterns are theoretically salient. The physical-capability item shows the largest inter-group gap, with women guides (4.61) scoring well above male guides (3.48, Cohen's $d = 1.09$). Because women tourists - who have no occupational stake - score even higher (4.74), the scepticism about women's physical capability appears concentrated within the male-guide community rather than reflecting a broader societal consensus, echoing Frohlick's (2006) account of gendered competence discourse in mountaineering. The social-acceptance item yields the lowest overall mean (3.17), with all groups below the scale midpoint, indicating that even successful women guides do not perceive their occupational presence as socially normalised - a structural-perception finding consistent with Alarcón and Cole (2019). The family-opposition item achieves cross-group consensus (3.83), corroborating the barrier-severity data in Section 3.5.

Table 2. Gender-Role Attitude Scale: Mean Scores by Respondent Group (N = 346, scale 1-5)

Statement (1 = Strongly disagree ... 5 = Strongly agree)	Women guides M (SD)	Male guides M (SD)	Mgr/owners M (SD)	Women tourists M (SD)	Overall M (SD)
Women are as physically capable as men for high-altitude trekking	4.61 (0.62)	3.48 (1.04)	4.12 (0.81)	4.74 (0.51)	4.20 (0.85)
Society in Ladakh accepts women working as guides	2.87 (1.08)	3.04 (1.11)	3.31 (0.97)	3.58 (0.94)	3.17 (1.04)
Family opposition is the main barrier for women guides	4.38 (0.74)	3.72 (0.98)	3.94 (0.86)	3.41 (1.02)	3.83 (0.93)
Women-only tour groups are safer than mixed groups	4.12 (0.88)	2.91 (1.18)	3.74 (0.91)	4.48 (0.71)	3.82 (1.03)
A woman guide demonstrates leadership for younger women	4.74 (0.51)	3.38 (1.09)	4.21 (0.77)	4.61 (0.62)	4.24 (0.80)
I have experienced harassment or discrimination on trails	3.94 (0.92)	1.84 (0.94)	2.61 (1.07)	3.28 (1.14)	2.89 (1.12)
My income as a guide is respected by my household	3.42 (1.01)	4.28 (0.78)	-	-	3.78 (0.96)
Adventure tourism has improved women's social mobility	4.18 (0.81)	3.61 (0.94)	4.44 (0.69)	4.32 (0.77)	4.14 (0.82)
Traditional gender norms restrict women's guiding careers	4.44 (0.71)	3.17 (1.08)	3.88 (0.84)	3.74 (0.92)	3.86 (0.94)
Female-led tours attract premium-paying women clients	3.88 (0.84)	2.78 (1.04)	4.31 (0.72)	4.22 (0.80)	3.82 (0.92)

*Note: *One-way ANOVA significant at $p < .001$ for all items. SD in parentheses. '-' indicates item not applicable to that group. Groups: women guides $n = 118$, male guides $n = 87$, managers $n = 72$, women tourists $n = 69$.

3.3. Income and Employment Comparison

Table 3 shows an absolute gender income gap of approximately 30.5% (women ₹98,400, men ₹141,700, $t(203) = -7.88$, $p < .001$, $d = 1.09$). Adjusted for the gap in days employed (84.3 vs. 118.6), the daily-earnings gap narrows substantially, indicating that part of the total gap reflects differential access to working days rather than differential daily rates. The striking exception is income from women-only tours (41.7% of women's income vs. 4.2% of men's), confirming that this segment constitutes a distinct market niche in which women guides hold a near-exclusive competitive advantage. Non-significant differences in year-on-year income growth and repeat-client rate suggest that, once established, women guides perform comparably to men in sustaining client relationships, the binding

constraints are entry and access to working days rather than service quality - a pattern consistent with the 'unexplained' component of gender wage gaps documented by Blau and Kahn (2000).

Table 3. Income and Employment Metrics: Women vs. Male Guides (n = 205)

Variable	Women guides (n = 118)	Male guides (n = 87)	t / F	p	D
Mean annual income (INR '000)	98.4	141.7	t(203) = -7.88	<.001	1.09
SD of annual income (INR '000)	42.1	54.8	-	-	-
Mean days employed (season)	84.3	118.6	t(203) = -9.12	<.001	1.27
Income from women-only tours (%)	41.7	4.2	t(203) = 18.44	<.001	2.57
Guides holding certified training (%)	53.4	71.3	$\chi^2(1) = 7.84$	.005	-
Guides with own equipment (%)	34.7	62.1	$\chi^2(1) = 16.22$	<.001	-
Seasonal income variability (CV)	0.68	0.51	F(1,203) = 11.37	.001	-
Mean group size managed	6.2	9.4	t(203) = -6.71	<.001	0.93
Income growth YoY (%)	58.5	67.8	$\chi^2(1) = 2.18$	.140	-
Repeat-client rate (self-reported, %)	44.1	38.6	$\chi^2(1) = 0.84$	.360	-

*Note: * t-tests use Welch correction where Levene's test $p < .05$. Cohen's $d = |\text{mean difference}|/\text{pooled SD}$. CV = coefficient of variation (SD/mean), YoY = year-on-year.

3.4. GRAS Subscale ANOVA

Table 4 presents the six-subscale GRAS profile. The most theoretically significant pattern is the consistent positioning of women tourists as the most gender-liberal group on all applicable subscales, scoring above women guides on physical-capability equality (4.71 vs. 4.58) and social acceptance (3.62 vs. 2.91). This suggests a selection effect - women who seek out women-guided experiences bring pre-existing liberal attitudes - with implications for interpreting the causal direction of the safety-perception findings in Section 3.8. Male guides score lowest on physical capability, leadership attribution and safety perception, again locating attitudinal resistance in the direct male-competitor group rather than in the wider population or managerial class.

Table 4. GRAS Subscale Mean Scores by Respondent Group (one-way ANOVA, N = 346)

GRAS subscale	Women guides	Male guides	Managers	Women tourists	F(3,342)	Post-hoc
Physical Capability Equality (PCE)	4.58	3.41	4.09	4.71	44.72***	WG > M***
Social Acceptance of Guiding (SAG)	2.91	3.06	3.34	3.62	14.38***	T > WG**
Leadership Attribution to Women (LAW)	4.68	3.31	4.18	4.57	38.24***	WG > M***
Safety Perception: Women-only (SPW)	4.17	2.88	3.71	4.51	36.91***	T > M***
Institutional Barrier Recognition (IBR)	4.41	3.22	3.84	3.71	22.14***	WG > M***
Income Legitimacy (ILG)	3.44	4.26	-	-	18.63***	M > WG**
Overall GRAS mean	4.00	3.36	3.83	4.22	28.47***	T > M***

*Note: * Tukey HSD post-hoc comparisons, WG = women guides, M = male guides, T = women tourists. ILG not applicable to the tourist sub-group. F-ratios significant at $p < .01$, * $p < .001$.

3.5. Barrier Analysis

The barrier analysis (Table 5) yields a clear, policy-relevant hierarchy. Family opposition and household gender norms constitute the most severe constraint (severity 4.44, ranked first by 48.3% of women guides), most acute in Zanskar (sub-group severity 4.71). Male peer resistance within guide networks ranks second (4.11), reflecting the occupational dimension of exclusion: women guides report systematic disadvantage in referrals, equipment sharing and access to male-dominated bargaining platforms. The positive severity difference between women and male guides across all nine barriers ($\Delta = +0.43$ to $+2.18$, all significant) confirms that the barrier landscape is not merely shared at differing intensities but is qualitatively gendered in its social and institutional operation.

Table 5. Barriers to Women's Guiding Careers: Severity Index and Ranking (n = 118)

Barrier	Ranked #1 (%)	Ranked #2 (%)	Ranked #3 (%)	Severity (1-5)	Δ vs. male guides
Family opposition / household norms	48.3	19.5	11.2	4.44	+2.18***
Male peer resistance in guide networks	29.7	22.0	14.6	4.11	+1.84***
Absence of formal certification pathways	22.0	24.6	18.6	3.94	+0.92**
Physical infrastructure (toilets, camps)	19.5	21.2	22.0	3.78	+1.12***
Client hesitancy to hire women guides	17.8	18.6	16.9	3.62	+0.88**
Safety concerns on remote trails	16.1	17.8	19.5	3.54	+0.74**
Income gap vs. male counterparts	14.4	15.3	14.4	3.41	+0.67*
Lack of mentorship / role models	12.7	13.6	16.9	3.28	+0.51*
Agency / employer gender bias	11.0	12.7	12.7	3.17	+0.43*

*Note: * Severity index = mean rating on a 1-5 scale by women guides (n = 118). Ranking columns show the percentage nominating each barrier as their primary, secondary or tertiary obstacle. Δ vs. male guides = severity difference between groups, independent t-tests: * $p < .05$, $p < .01$, * $p < .001$.

3.6. Correlation Matrix

The correlation matrix (Table 6) confirms strong bivariate associations in the expected directions. Career persistence correlates most strongly with role-model effect ($r = .57$), social support ($r = .52$) and the barrier index ($r = -.51$). Positive inter-correlations among the predictors indicate that the determinants of persistence are co-occurring rather than independent, consistent with the multi-pathway specification of the structural model.

Table 6. Pearson Correlation Matrix: Career Persistence and Key Predictors (n = 118)

Variable	1	2	3	4	5	6	7
1. Career persistence	-						
2. Social support	.52**	-					
3. Income level	.48**	.39**	-				
4. Gender-norm liberalism	.46**	.44**	.31**	-			
5. Barrier index (reverse)	-.51**	-.43**	-.37**	-.48**	-		
6. Safety perception	.44**	.38**	.42**	.41**	-.39**	-	
7. Role-model effect	.57**	.49**	.38**	.52**	-.44**	.61**	-

*Note: ** $p < .01$ (two-tailed). The barrier index is scored so that higher values denote more barriers.

3.7. Hierarchical Regression: Predictors of Career Persistence

The regression model (Table 7) explains 59.7% of the variance in career persistence (adjusted $R^2 = 0.597$). Social support is the strongest predictor ($\beta = 0.341$), followed by income level ($\beta = 0.298$) and family approval ($\beta = 0.264$), indicating that enabling relationships and economic viability - rather than individual characteristics - are the most actionable levers for retention. Among constraining factors, the barrier index exerts the largest negative effect ($\beta = -0.289$), a one-SD reduction in barriers is associated with a 0.289-SD increase in persistence, roughly equivalent to gaining agency affiliation plus a full education-level increment. Each additional harassment incident is associated with a 0.187-SD reduction in persistence, underscoring that physical and psychological safety directly conditions whether women remain in the profession. The incremental variance contributed by the constraining-factors block ($\Delta R^2 = .133$) confirms that these factors operate independently of social support and income.

Table 7. Hierarchical Multiple Regression: Predictors of Career Persistence (n = 118)

Predictor	β	SE	t	p	VIF
(Constant)	-	0.841	-	<.001	-
Social support score	0.341	0.061	5.59	<.001	1.72
Income level ($\log_{10}$ INR)	0.298	0.074	4.03	<.001	1.58
Family approval (binary)	0.264	0.082	3.22	.001	1.43
Peer network size (count)	0.217	0.044	4.93	<.001	1.91
Agency affiliation (binary)	0.198	0.079	2.51	.013	1.37

Education level (ordinal 1-4)	0.162	0.058	2.79	.006	1.44
Years of experience	0.147	0.037	3.97	<.001	1.28
Barrier index (reverse-scored)	-0.289	0.067	-4.31	<.001	1.83
Perceived safety score	0.141	0.055	2.56	.011	1.34
Harassment incidents (count)	-0.187	0.051	-3.67	<.001	1.56
R² = 0.614, Adj. R² = 0.597, F(10,107) = 17.09, p < .001					

*Note: * Dependent variable: career-persistence composite (log-transformed), standardised betas. Blocks entered sequentially: B1 = demographic controls, B2 = household/social context, B3 = employment conditions, B4 = constraining factors. All VIF < 2.0. ΔR^2 : B1 = .089, B2 = .214, B3 = .178, B4 = .133 (all $p < .001$).

3.8. Safety Perception by Tour Type and Experience

Table 8 reveals a consistent two-way pattern: safety-perception scores are higher under women-only formats than mixed-gender formats at every experience level and higher for more-experienced guides within each format. The highest cell mean is for women-only tours led by guides with over five years' experience (4.62), against the lowest for inexperienced guides in mixed-gender tours (3.12). The format gap widens with experience (0.74 points at the highest tier), suggesting a positive feedback dynamic between professional development and format-specific safety delivery.

Table 8. One-Way ANOVA: Safety-Perception Score by Tour Format and Guide Experience (n = 149)

Group	n	Safety perception (M)	SD	F	Post-hoc
< 2 yrs, mixed-gender tours	32	3.12	0.91		Lowest***
< 2 yrs, women-only tours	21	3.84	0.78		
2-5 yrs, mixed-gender tours	28	3.61	0.84	F(5,112)	
2-5 yrs, women-only tours	27	4.31	0.67	= 19.47	
> 5 yrs, mixed-gender tours	19	3.88	0.77	p < .001	
> 5 yrs, women-only tours	22	4.62	0.54		Highest***

*Note: * Safety-perception score = composite of four safety-related Likert items (scale 1-5). Tukey HSD post-hoc: *** $p < .001$.

3.9. Structural Equation Model

Following confirmation of the measurement model (Section 2.5), the structural model was estimated to test H1-H8 (Table 9). All eight hypotheses are supported. The strongest direct effect is career persistence → role-model effect ($\beta = 0.518$), indicating that women's sustained presence generates measurable normative change through visibility to younger women and family members. Career persistence → safety perception ($\beta = 0.447$) confirms that accumulated experience improves the perceived safety of hiring a woman guide.

Table 9. Structural Equation Model: Standardised Path Coefficients (N = 346)

Construct relationship	β	SE	p	95% CI	Hypothesis
Gender-norm liberalism → persistence	0.381	0.054	<.001	[0.275, 0.487]	H1: supported
Social support → persistence	0.344	0.061	<.001	[0.224, 0.464]	H2: supported
Income level → persistence	0.301	0.068	<.001	[0.167, 0.435]	H3: supported
Barrier index → persistence	-0.312	0.058	<.001	[-0.426, -0.198]	H4: supported
Persistence → safety-perception change	0.447	0.049	<.001	[0.351, 0.543]	H5: supported
Persistence → role-model effect	0.518	0.044	<.001	[0.432, 0.604]	H6: supported
Women-only tours → safety-perception change	0.362	0.057	<.001	[0.250, 0.474]	H7: supported
Women-only tours → agency empowerment	0.334	0.061	<.001	[0.214, 0.454]	H8: supported
Indirect: norm liberalism → safety (via persistence)	0.171	0.034	<.001	[0.104, 0.238]	Mediation
Model fit: $\chi^2/df = 1.91$, CFI = 0.954, RMSEA = 0.051, SRMR = 0.064					Good fit

*Note: * Maximum-likelihood estimation, bias-corrected bootstrap CIs (2,000 resamples). RMSEA 90% CI [0.034, 0.068]. CFI = comparative fit index, RMSEA = root mean square error of approximation, SRMR = standardised root mean square residual.

The two women-only-tour paths - to safety perception ($\beta = 0.362$) and agency empowerment ($\beta = 0.334$) - confirm that the format generates independent safety and empowerment gains beyond those explained by persistence. The mediation result is theoretically important: gender-norm liberalism affects safety perception primarily through career persistence (indirect $\beta = 0.171$, 95% CI [0.104, 0.238]), meaning that liberal attitudes improve safety outcomes mainly by enabling guides to persist long enough to accumulate experience - a pathway disrupted when persistence is short-circuited by barriers, family opposition or economic non-viability. Model fit was good ($\chi^2/df = 1.91$, CFI = 0.954, RMSEA = 0.051, SRMR = 0.064).

4. Discussion

The findings are interpreted below in relation to the entrepreneurial-persistence framework (Section 2.5-2.6) and the international literature on women's tourism entrepreneurship and gender norms, rather than as a restatement of the individual statistics already reported in Section 3.

4.1. The Income Gap: Structural rather than Experiential

The 30.5% gender income gap (Table 3) admits three proximate explanations consistent with the data: women guides work fewer days per season, partly reflecting family-obligation constraints and differential access to referral networks, they are concentrated in the women-only niche, which offers a near-exclusive position but greater booking seasonality and they are markedly less likely to own equipment, which raises operating costs and signals lower occupational formalisation to clients and agencies. The non-significant differences in year-on-year income growth and repeat-client rates caution against an 'experiential deficit' reading in which the gap self-corrects with tenure. The pattern aligns with Blau and Kahn's (2000) decomposition of professional gender wage gaps, in which the component remaining after controlling for observable productivity reflects exclusion that market processes do not resolve. Interpreted through the persistence framework, the income gap is therefore not merely an earnings outcome but a determinant of business sustainability: constrained capital accumulation limits investment in equipment and network expansion, so that persistence depends on the availability of economic resources as much as on individual capability - consistent with Alarcón and Cole (2019) and with the resource dimension of Kabeer's (1999) empowerment framework.

4.2. Family Opposition as a Structural Barrier

The primacy of family opposition in the barrier hierarchy (severity 4.44) warrants theoretical contextualisation rather than mere documentation. In Ladakhi social structure, women's overnight outdoor employment entails a household absence that is culturally coded as transgressive irrespective of its economic justification. The multi-day character of high-altitude trekking - absences of seven to twenty-five consecutive days - generates a household-negotiation challenge qualitatively different from market-based or guesthouse work. The 'care penalty' documented in feminist economics (Folbre, 1994, Williams, 2001) thus takes a specifically spatial form here: women's absence from the domestic sphere is simultaneously economic non-contribution and symbolic transgression, a compound sanction that male guides do not face. This locates entrepreneurial persistence as socially embedded rather than purely market-driven: unlike conventional opportunity-recognition models, persistence among women guides in Ladakh depends heavily on household approval and social legitimacy. The significant social-support path in the SEM ($\beta = 0.344$) indicates, however, that this barrier is not immutable - guides who sustain careers do so through household income negotiation and peer support, with the emerging community of women guides performing this normative negotiation collectively through the role-model mechanism ($\beta = 0.518$).

4.3. Women-Only Tours as Institutional Innovation

The SEM confirms that participation in women-only tours independently predicts both safety-perception improvement ($\beta = 0.362$) and agency empowerment ($\beta = 0.334$), controlling for experience and persistence. The format's specific social composition therefore generates normative and psychological effects beyond individual career development. From an institutional-theory perspective (DiMaggio and Powell, 1983), women-only tours function as a normative reference point for what gender-inclusive adventure tourism looks like, gradually shifting the cognitive script that clients, agencies and guides apply to the occupation. The format's near-exclusive revenue contribution to women guides (41.7%) supplies a market rationale for its expansion that is independent of normative arguments, while the positive experience-safety relationship (Table 8) indicates that investment in experienced women guides yields measurable product-quality gains in precisely the format with the highest commercial potential. Interpreted through the persistence framework, women-only tours operate as entrepreneurial platforms -

specialised niches that lower entry barriers, strengthen professional visibility and support business sustainability among women tourism entrepreneurs in remote destinations.

5. Implications

5.1. Theoretical Implications

The study contributes to gender-and-tourism scholarship by introducing and empirically testing an entrepreneurial-persistence framework for women tourism entrepreneurs in remote mountain destinations. By defining persistence as realised continuation behaviour distinct from intention, resilience and firm survival (Section 1.5), the framework clarifies a construct that prior tourism research has often used loosely and demonstrates that persistence is jointly conditioned by gender-norm liberalism, social support, economic viability and institutional barriers. The mediation finding - that gender-norm liberalism influences downstream safety outcomes primarily through persistence - extends Kabeer's (1999) empowerment logic by specifying persistence as the behavioural mechanism linking attitudinal resources to achievements. These results position women guides not merely as employees but as entrepreneurial actors whose continuation depends on the interaction of market opportunity and social legitimacy.

5.2. Managerial and Practical Implications

The findings indicate, rather than prescribe, several directions for entrepreneurial support within Ladakh's adventure tourism sector. Because social support and family approval are the strongest predictors of persistence, support measures that strengthen these enabling relationships - for example, mentorship and peer-network structures and family-facing engagement - are likely to be more consequential than measures targeting individual attributes alone. Given the observed equipment-ownership and certification gaps, improving access to equipment, training and professional networks could plausibly strengthen business sustainability, although the cross-sectional design means these expectations require confirmation through intervention studies. The harassment finding (Section 3.7) suggests that workplace-safety mechanisms are relevant to retention, their effectiveness, however, should be evaluated empirically rather than assumed. These implications are offered as evidence-consistent possibilities for tourism agencies, guide associations and public bodies and their causal effects on persistence remain to be tested.

6. Policy Considerations

The following considerations follow from and are bounded by, the empirical findings, they are presented as candidate interventions whose effects warrant evaluation rather than as established prescriptions.

6.1. Women-Accessible Certification and Training

Because the absence of women-accessible certification pathways ranks as the third most severe structural barrier (severity 3.94) and because the certification gap (Table 3) is substantial, certification arrangements adapted to the overnight-absence constraint - for instance, modular rather than continuous-residency formats - may lower a documented barrier to entry. Whether such adaptations improve persistence is an empirical question best addressed through a pilot with measured outcomes.

6.2. Equipment Access

The 27.4-percentage-point equipment-ownership gap (34.7% vs. 62.1%) represents a measurable operational disadvantage. Equipment-finance arrangements channelled through occupational associations are one plausible response, the evidence base for their effectiveness in comparable Himalayan settings remains limited and any such scheme should incorporate outcome monitoring rather than rely on assumed repayment performance.

6.3. Women-Only Tour Recognition and Marketing

The revenue evidence (women-only tours at 41.7% of women guides' income) and the format's independent safety and empowerment effects (Section 3.9) provide a commercial and social rationale for formal recognition of women-led tour standards. A quality-recognition scheme aligning the interests of operators, guides and tourism authorities is consistent with these findings, though the precise standards and their uptake would need to be developed and assessed locally.

6.4. Harassment Reporting Mechanisms

The regression finding that each additional harassment incident is associated with a 0.187-SD reduction in persistence, holding income and support constant, provides a direct quantitative justification for a confidential trail-

harassment reporting mechanism with a defined response process. The design and governance of such a mechanism should be developed with women guides as participants and its effect on retention evaluated over time.

7. Limitations and Future Research

Several limitations qualify these findings. First, the cross-sectional design cannot establish whether positive safety perceptions are generated by women-only-tour participation or whether pre-existing liberal attitudes select participants into these formats - a self-selection concern partly evident in the GRAS subscale data (Table 4). A pre-post longitudinal design with a matched comparison group would be needed to identify the causal effect cleanly. Second, although the women-guide sub-sample ($n = 118$) satisfies the case-to-parameter ratios recommended for SEM (Kline, 2023), a larger guides-only sample would improve the precision of path estimates. Third, the study under-samples the informal guide sector - women who guide without LMTGA registration - who are likely to face more severe barriers and lower incomes. Fourth, self-reported income and attitude measures may be subject to social-desirability bias, although the low common-method variance (Section 2.5) mitigates this concern.

Future research should prioritise: (a) a longitudinal cohort study tracking women guides' trajectories across three to five seasons, (b) a randomised or quasi-experimental evaluation of the certification and equipment interventions discussed in Section 6, with persistence and income as primary outcomes, (c) an intersectional analysis of how religion (Buddhist vs. Muslim women), caste and district interact with gender and (d) comparative extension of the framework to Nepal's Everest region, Sikkim and Spiti Valley to assess which findings are Ladakh-specific and which generalise across the Himalayan adventure-tourism context.

Conclusion

This study provides the first quantitative characterisation of women trekking guides' career conditions, gender-norm attitudes and structural barriers in Ladakh's adventure-tourism industry, drawing on a stratified sample of 346 respondents across four sub-populations. Women guides occupy a structurally disadvantaged but economically viable and normatively significant position. The 30.5% income gap is real and partly explained by differential access to working days, equipment and referral networks rather than by performance differences - a distinction with direct implications for where support should be targeted. The identification of social support and family approval as the strongest predictors of persistence locates the household as the primary site where career decisions are contested and peer networks as the primary resource through which women sustain themselves against that pressure.

Theoretically, the study contributes an entrepreneurial-persistence framework for women tourism entrepreneurs in remote mountain destinations, defining persistence precisely and demonstrating that it is shaped by the interaction of gender norms, social support, economic viability and institutional barriers. By treating women guides as entrepreneurial actors rather than employees alone, it extends gender-and-tourism entrepreneurship scholarship and connects gender-inclusive workforce participation to wider debates on socially sustainable tourism. Strengthening institutional support, entrepreneurial inclusion and workplace safety for women guides is therefore relevant not only to gender equality but to the long-term sustainability and resilience of Himalayan tourism systems.

Declarations

Ethical Considerations: The study followed the ethical guidelines and research regulations of the University of Ladakh, India. At the time of data collection, the University Ethics Committee did not issue formal approval numbers for non-clinical, survey-based social-science research. Participation was voluntary, informed consent was obtained from all respondents and confidentiality and anonymity were maintained throughout.

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Author Contributions

Mohd Rafee: conceptualization, methodology, supervision, writing - original draft, formal analysis.

Tsewang Dolma: data collection, investigation, writing - review and editing, field coordination.

Stanzin Khenrab: field support, stakeholder coordination, resources, proofreading. All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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