



Hard-Adventure Tourism Participation in Goa: Extending the Theory of Planned Behaviour with the Moderating Role of Past Experience

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Abstract: Physically challenging and risk-oriented experiences offer destinations opportunities to diversify tourism and attract adventure seekers. However, understanding how tourists translate behavioural intentions into hard-adventure participation remains essential. Drawing on the Theory of Planned Behaviour, this research examines the influence of attitude, subjective norms, and perceived behavioural control on behavioural intention and the moderating role of past experience in the relationship between intention and participation.

A quantitative, cross-sectional survey of 392 domestic tourists in Goa employed non-probability self-selection sampling. Data were analysed using partial least squares structural equation modelling and importance–performance map analysis. Hard-adventure activities included rock climbing, bouldering, paragliding, hang-gliding, bungee jumping, off-road biking, and surfing.

The findings indicate that attitude, subjective norms, and perceived behavioural control positively influence behavioural intention, which positively predicts hard-adventure participation. Past experience strengthens the intention–participation relationship. The model explains 32% of the variance in intention and 27% in participation. Importance–performance analysis identifies attitude and past experience as priorities for improvement.

The research extends planned behaviour theory by incorporating past experience as a moderator. Findings suggest that adventure operators, destination marketers, and tourism authorities should promote favourable attitudes, rewarding experiences, training, and credible safety communication. Cross-sectional data and self-selection sampling limit causal inference and generalisation.

Keywords: Hard-adventure tourism; Theory of Planned Behaviour; Behavioural intention; Past experience.

Introduction

Tourism is a major contributor to economic development in 2025, Travel & Tourism generated US\$11.6 trillion, representing 9.8% of global GDP, while its contribution in India reached US\$263.6 billion, or 6.6% of national GDP (World Travel & Tourism Council, 2026). [wttc.org](https://www.wttc.org) Destinations attract visitors through cultural, coastal, recreational and adventure experiences, including demanding activities offering challenge and excitement. This study examines domestic tourists in Goa through rock climbing, bouldering, paragliding, hang-gliding, bungee jumping, off-road biking and surfing, recognising that their difficulty and risk depend on participation conditions. Previous studies investigated adventure travel intentions, mindsets and mountaineering experiences (Bui & Kiatkawsin, 2020; Japutra & Hossain, 2021; Teng et al., 2025; Yeh et al., 2025), but the reviewed literature provides limited evidence concerning how past experience conditions the relationship between intention and responses to these activities among domestic tourists in Goa. Addressing this gap, the study asks: How do attitude, subjective norms and perceived behavioural control explain adventure tourism intention, and how does past experience moderate its relationship with self-reported hard adventure participation and activity-seeking? Accordingly, its objective is to test these relationships using an extended Theory of Planned Behaviour framework. Its distinctive contribution lies in combining the core TPB predictors with experiential moderation across several adventure activities in Goa. The findings can inform researchers' understanding of experiential differences, guide



operators in designing suitable activities, assist marketers in developing relevant communication, support authorities in planning visitor services and help tourists make informed choices.

Literature Review and Hypothesis Development

Theory of Planned Behaviour

The Theory of Planned Behaviour explains behavioural intention through attitude, subjective norms and perceived behavioural control (Ajzen, 1991). Its application to adventure tourism provides a framework for understanding tourists' evaluations, social influences and perceived capabilities. This study extends TPB by examining hard adventure tourism perception as an outcome of intention and past experience as a moderator.

Behavioural Intention and Hard Adventure Tourism Perception

Behavioural intention represents an individual's willingness to undertake an activity (Ajzen, 1991). Adventure tourism research demonstrates that psychological orientations influence tourists' choices of adventurous activities (Japutra & Hossain, 2021). However, intention's association with hard adventure tourism perception remains less established. This study proposes that stronger intention is associated with more favourable perceptions, extending TPB beyond its conventional behavioural outcome.

H1: Behavioural intention positively influences hard adventure tourism perception.

Attitude and Behavioural Intention

Attitude reflects an individual's favourable or unfavourable evaluation of an activity (Ajzen, 1991). (Teng et al., 2025) found that favourable attitudes positively influenced adventure travel intention. (Bui & Kiatkawsin, 2020) similarly identified an indirect association between attitude and hard adventure visit intention through desire. Tourists who evaluate adventure activities favourably are therefore expected to report stronger intentions.

H2: Attitude towards adventure tourism activities positively influences behavioural intention.

Subjective Norms and Behavioural Intention

Subjective norms represent perceived social expectations concerning participation in an activity (Ajzen, 1991). (Teng et al., 2025) reported a positive association between subjective norms and adventure travel intention. Conversely, (Bui & Kiatkawsin, 2020) found a nonsignificant relationship, suggesting contextual variation. Nevertheless, approval from significant others may encourage domestic tourists to consider adventure activities.

H3: Subjective norms positively influence behavioural intention.

Perceived Behavioural Control and Behavioural Intention

Perceived behavioural control concerns individuals' assessments of their ability and resources to perform an activity (Ajzen, 1991). This is relevant to hard adventure tourism, which may require specialised skills and physical preparedness. (Bui & Kiatkawsin, 2020) identified an indirect association with intention, whereas (Teng et al., 2025) reported a nonsignificant direct relationship. The present study proposes that greater perceived capability strengthens intention.

H4: Perceived behavioural control positively influences behavioural intention.

Moderating Role of Past Experience

Previous adventure experiences may provide knowledge and practical reference points for evaluating demanding activities. (Yeh et al., 2025) examined experience-related differences among mountaineers, although most group differences were nonsignificant. Building on this experiential perspective, the present study proposes that past



experience strengthens the association between intention and hard adventure tourism perception. This specific interaction is an extension rather than a relationship directly established by the cited studies.

H5: Past experience positively moderates the relationship between behavioural intention and hard adventure tourism perception, such that the relationship is stronger at higher levels of past experience.

Research Methodology

The study adopted a quantitative approach grounded in positivist philosophy, with a survey as the research strategy. A questionnaire was developed to collect primary data for empirical analysis. The investigation followed a cross-sectional design and was conducted between October 2025 and May 2026.

Survey Instrument: The questionnaire comprised two sections. The first collected respondents' demographic information, including gender, age, educational qualifications, and marital status. The second assessed constructs related to tourists' participation in hard adventure tourism: behavioural intention (four items), attitude (six items), subjective norms (four items), perceived behavioural control (five items), past experience (four items), and hard adventure tourism perception (seven items), the outcome variable. The seven items measuring hard adventure tourism perception were developed from focused interviews with tourists, while items for the remaining constructs were adapted from previous studies to align with the research objectives.

All construct items were measured on a five-point Likert scale, ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"). The questionnaire was administered in English and included a brief introduction. The researcher personally clarified any terminology that respondents found unclear. Responses with missing answers to construct items were excluded before data analysis. A copy of the questionnaire is available from the authors upon request.

Sampling and Data Collection

A non-probability, self-selection sampling procedure was used to collect primary data through a self-administered questionnaire. Data were collected from domestic tourists visiting beaches, heritage sites, and local markets in Goa. The state was selected because of its popularity among domestic travellers, with the Department of Tourism, Government of Goa (2025), identifying it as one of India's preferred travel destinations. Of the 415 responses collected, 23 were excluded during screening because of more than 10% missing data, outliers, or uniform responses across construct items. The remaining 392 responses were retained for analysis.

The final sample comprised 227 men (57.91%) and 165 women (42.09%). Respondents aged 18–30 years constituted the largest age group (29.08%), followed by those aged 31–40 years (27.04%), 41–50 years (20.92%), 51–60 years (13.01%), and 61 years and above (9.95%). Regarding educational qualifications, 28.06% were graduates, 22.96% were postgraduates, and 5.87% held doctorates. Respondents with HSSC qualifications and those reporting other qualifications each accounted for 15.05%, while 13.01% had completed SSC or below. In terms of marital status, 42.09% were unmarried, 33.93% were married, 7.14% were in live-in relationships, 7.91% were widowed, and 8.93% were divorced.

Table 1 Demographic details of the tourist

Category	Category	Frequency	Percent
Gender	Male	227	57.91
	Female	165	42.09
	Total	392	100

Age	18–30 years	114	29.08	
	31–40 years	106	27.04	
	41–50 years	82	20.92	
	51–60 years	51	13.01	
	61 years and above	39	9.95	
	Total	392	100	
Educational qualification	SSC and below	51	13.01	
	HSSC	59	15.05	
	Graduate	110	28.06	
	Postgraduate	90	22.96	
	Doctorate	23	5.87	
	Other	59	15.05	
	Total	392	100	
Marital status	Unmarried	165	42.09	
	Married	133	33.93	
	Live-in relationship	28	7.14	
	Widow	31	7.91	
	Divorcee	35	8.93	
	Total	392	100	

Measurement Model Analysis

The reflective measurement model was evaluated for indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. As presented in Table 2, outer loadings ranged from 0.709 to 0.909, exceeding the recommended threshold of 0.708 and supporting indicator reliability (Hair et al., 2022). Internal consistency was assessed using Cronbach's alpha and composite reliability. Cronbach's alpha values ranged from 0.763 to 0.870, while the reported composite reliability values ranged from 0.786 to 0.874, exceeding the recommended minimum of 0.70 (Hair et al., 2022). Average variance extracted (AVE) values ranged from 0.561 to 0.660, surpassing the threshold of 0.50 and supporting convergent validity (Fornell & f. Iarcke, 1981).



Table 2. Measurement Model Assessment: Indicator Loadings, Internal Consistency Reliability, Convergent Validity, and Collinearity

Factors	Loadings	Cronbach's Alpha	Composite reliability	Average variance extracted (AVE)	VIF
Attitude towards adventure tourism activities					
ATT1	0.735	0.856	0.862	0.58	1.584
ATT2	0.759				1.629
ATT3	0.727				1.649
ATT4	0.740				1.702
ATT5	0.804				1.903
ATT6	0.802				1.919
Hard Adventure Tourism Preference					
HAT1	0.737	0.87	0.872	0.561	1.655
HAT2	0.709				1.619
HAT3	0.756				1.768
HAT4	0.761				1.702
HAT5	0.756				1.789
HAT6	0.761				1.769
HAT7	0.761				1.767
Behavioural Intention					
INT1	0.789	0.827	0.835	0.659	1.73
INT2	0.784				1.654
INT3	0.813				1.706
INT4	0.858				2.012
Perceived Behavioural Control					
PBC1	0.776	0.84	0.867	0.605	1.584
PBC2	0.727				1.673



PBC3	0.790				1.682
PBC4	0.749				1.745
PBC5	0.844				1.936
Past Experience					
PE1	0.745	0.763	0.786	0.585	1.373
PE2	0.713				1.453
PE3	0.725				1.438
PE4	0.866				1.903
Subjective Norms					
SN1	0.805	0.83	0.874	0.66	1.642
SN2	0.759				1.679
SN3	0.770				1.798
SN4	0.909				2.558

Discriminant validity was evaluated using the Fornell–Larcker criterion. As presented in Table 3, the square root of each construct’s AVE exceeded its absolute correlations with all other constructs. Accordingly, the measurement model satisfied the Fornell–Larcker criterion, supporting discriminant validity among the six constructs (Fornell & Larcker, 1981).

Table 3. Discriminant Validity Assessment Using the Fornell–Larcker Criterion

Fgvaa45	ATT	BI	HAT	PE	PBC	SN
Attitude towards adventure tourism activities	0.762					
Behavioural Intention	0.418	0.81				
Hard Adventure Tourism Preference	0.219	0.424	0.75			
Past Experience	0.027	0.022	0.238	0.765		
Perceived Behavioural Control	-0.041	0.196	0.107	-0.044	0.78	
Subjective Norms	-0.023	0.312	0.163	-0.005	0.027	0.81

Structural Model Assessment

The structural model was evaluated using the coefficient of determination (R^2), standardised path coefficients (β), t-statistics, confidence intervals, and Q^2 predict. These measures assess the model’s explanatory power, the



significance of the hypothesised relationships, and its predictive performance (Hair et al., 2022; Shmueli et al., 2019).

As presented in Table 4, the model explained 32% of the variance in behavioural intention ($R^2 = 0.320$) and 27% of the variance in hard adventure tourism preference ($R^2 = 0.270$). Attitude, subjective norms, and perceived behavioural control jointly accounted for the explained variance in behavioural intention. The predictors of hard adventure tourism preference, including behavioural intention and its interaction with past experience, accounted for the explained variance in preference. These results demonstrate explanatory contributions for both endogenous constructs, although the adequacy of R^2 should be considered in relation to the research context and model complexity (Hair et al., 2019).

Predictive performance was examined using Q^2_{predict} . Positive values indicate that the model produces lower prediction errors than a naïve mean-based benchmark (Shmueli et al., 2019). Behavioural intention and hard adventure tourism preference recorded Q^2_{predict} values of 0.300 and 0.140, respectively. Both values exceeded zero, supporting predictive relevance relative to the benchmark. However, these values alone do not establish whether the model has low, medium, or high predictive power; such classification requires comparisons of indicator-level prediction errors with those of a linear model benchmark.

Table 5 presents the hypothesis-testing results. Behavioural intention was positively associated with hard adventure tourism preference ($\beta = 0.421$, $t = 10.568$, $p < 0.001$, 95% CI [0.344, 0.499]), supporting H1. Thus, tourists reporting stronger intentions to participate in hard adventure tourism also expressed greater preference for these activities.

Regarding the antecedents of behavioural intention, attitude exhibited the largest standardised coefficient ($\beta = 0.433$, $t = 13.037$, $p < 0.001$, 95% CI [0.368, 0.499]), supporting H2. Subjective norms were also positively associated with behavioural intention ($\beta = 0.317$, $t = 7.889$, $p < 0.001$, 95% CI [0.239, 0.397]), supporting H3. Perceived behavioural control showed a positive association with intention ($\beta = 0.205$, $t = 5.108$, $p < 0.001$, 95% CI [0.132, 0.289]), supporting H4. These findings indicate that favourable attitudes, perceived social approval, and greater perceived control were associated with stronger intentions to participate in hard adventure tourism.

The interaction between past experience and behavioural intention was positive and statistically significant ($\beta = 0.194$, $t = 5.296$, $p < 0.001$, 95% CI [0.121, 0.266]), supporting H5. Assuming that higher past-experience scores represent greater experience, this result indicates that the positive relationship between behavioural intention and hard adventure tourism preference becomes stronger as past experience increases. All five confidence intervals excluded zero, providing further support for the hypothesised relationships. The estimated structural model is presented in Figure 2.

Table 4. Explanatory Power and Predictive Relevance of the Structural Model

Endogenous latent variable	R-square	Q^2_{predict}	Interpretation
Behavioural Intention	0.32	0.30	substantial
Hard Adventure _Tourism Preference	0.27	0.14	substantial

Note. R^2 represents the proportion of variance explained in each endogenous construct. Positive Q^2_{predict} values indicate predictive relevance relative to the naïve mean-based benchmark.

Table 5. Structural Path Estimates and Hypothesis-Testing Results

Hyp.	Path	Beta	SD	T value	P values	Supported	CI	
							2.50%	97.50%
H1	INT → HATP	0.421	0.040	10.568	0.00	Yes	0.344	0.499
H2	ATT → INT	0.433	0.033	13.037	0.00	Yes	0.368	0.499
H3	SN → INT	0.317	0.041	7.889	0.00	Yes	0.239	0.397
H4	PBC → INT	0.205	0.043	5.108	0.00	Yes	0.132	0.289
H5	PE × INT → HATP	0.194	0.037	5.296	0.00	Yes	0.121	0.266

Note. ATT = attitude; INT = behavioural intention; SN = subjective norms; PBC = perceived behavioural control; PE = past experience; HATP = hard adventure tourism preference; SD = bootstrap standard deviation; CI = confidence interval. PE × INT represents the interaction term.

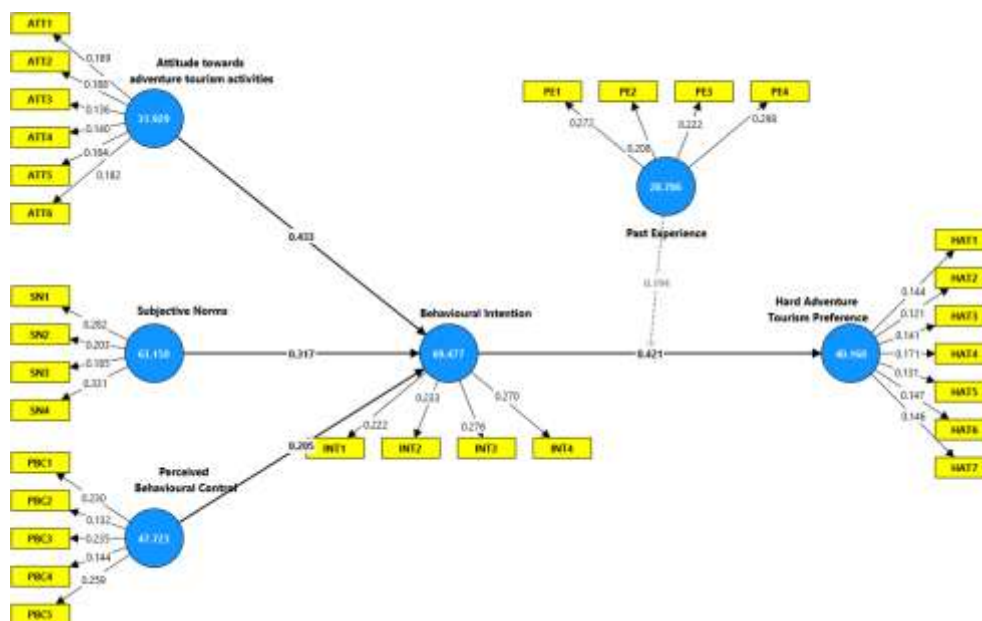


Figure 2. Estimated Structural Model of Hard Adventure Tourism Preference: Path Coefficients and Importance–Performance Map Analysis

Importance–performance map analysis (IPMA) was conducted with hard adventure tourism preference as the target construct. IPMA combines the total effects of antecedent constructs, representing their importance, with their average performance scores to identify priorities for improvement. Constructs with comparatively high importance and low performance warrant particular managerial attention (Hair, J. F., Jr., Hult, G. T. M., Ringle, C., & Sarstedt, 2016).

As illustrated in Figure 3, behavioural intention recorded the highest importance (0.421) and performance (69.477), identifying it as the principal driver of hard adventure tourism preference. Past experience ranked second in importance (0.242) but exhibited the lowest performance (28.786), suggesting considerable scope for

improvement. Attitude towards adventure tourism activities also emerged as a relevant improvement area, with an importance score of 0.182 and a comparatively low performance score of 31.929.

Subjective norms recorded an importance score of 0.133 and a performance score of 63.150, indicating relatively limited improvement potential compared with past experience and attitude. Perceived behavioural control had the lowest importance (0.086) and a performance score of 47.723, making it a lower priority within the estimated model.

These findings suggest that tourism providers should prioritise opportunities for tourists to build favourable adventure experiences and develop positive attitudes towards hard adventure tourism. Guided introductory activities, clear information about activity requirements, and opportunities to gain confidence may support these objectives. Meanwhile, the comparatively strong performance of behavioural intention should be maintained through accessible information and straightforward booking arrangements. These recommendations represent potential managerial responses to the observed importance–performance patterns rather than tested intervention effects.

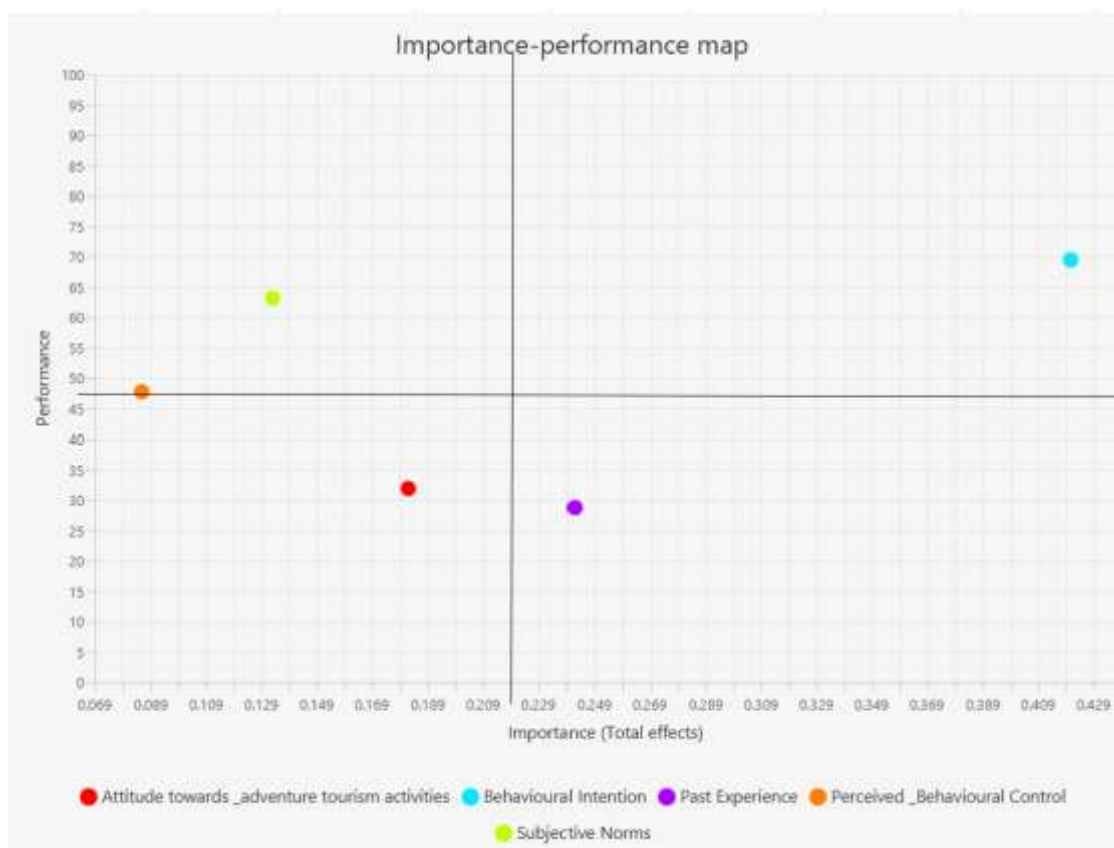


Figure 3. Importance–Performance Map of Antecedents of Hard Adventure Tourism Preference

Discussion

The findings support all five hypotheses and demonstrate the relevance of the extended Theory of Planned Behaviour to adventure tourism in Goa. Behavioural intention was positively associated with hard adventure tourism perception (H1: $\beta = 0.421$), extending the motivational role of intention proposed by Ajzen (1991) to a perceptual outcome. Attitude was the strongest antecedent of intention (H2: $\beta = 0.433$), consistent with (Teng et al., 2025) and the indirect attitude–intention relationship reported by (Bui & Kiatkawsin, 2020).



Subjective norms positively influenced intention (H3: $\beta = 0.317$), supporting (Teng et al., 2025), although (Bui & Kiatkawsin, 2020) reported a nonsignificant relationship. Perceived behavioural control also positively influenced intention (H4: $\beta = 0.205$), consistent with TPB but contrasting with (Teng et al., 2025). These differences suggest that social influences and perceived capabilities vary across adventure tourism contexts. Past experience strengthened the intention–perception relationship (H5: $\beta = 0.194$), suggesting that previous experience helps tourists connect their intentions with their perceptions of hard adventure activities. This specific moderation extends related research on experience and expertise in mountaineering (Yeh et al., 2025).

The IPMA identified past experience and attitude as potential improvement priorities, given their relatively substantial importance and low performance. Following (Hair, J. F., Jr., Hult, G. T. M., Ringle, C., & Sarstedt, 2016), operators could prioritise supervised introductory experiences, preparation guidance and communication that strengthens favourable attitudes towards adventure tourism. Behavioural intention had the highest importance and performance, indicating its central role in the model.

Practical and Research Implications

Adventure Tourism Operators: Adventure tourism operators in Goa should strengthen tourists' favourable attitudes and provide opportunities to gain experience, as identified by the IPMA. Supervised introductory activities, practical training and clear information about activity requirements and safety could improve confidence and support informed participation decisions.

Destination Marketers: Destination marketers should highlight the enjoyment, learning and personal achievement associated with adventure activities. Authentic participant accounts and communication involving travel companions may reinforce favourable attitudes and social encouragement. Promotional messages should clearly explain activity difficulty and preparation requirements.

Government and Tourism Authorities: Tourism authorities should promote operator standards, instructor training and accessible safety information to help tourists assess their capabilities. Partnerships with qualified providers could expand supervised introductory experiences. Tourism planning should consider visitors' experience levels and evaluate initiatives through participation and safety outcomes.

Tourists: Tourists should assess their physical readiness, skills and understanding of activity requirements before choosing hard adventure experiences. Beginners may benefit from introductory activities and professional guidance. Social encouragement should be considered alongside personal capability and the suitability of the activity.

Limitations and Future Research Directions

The study examined hard adventure tourism perception without simultaneously assessing soft adventure preferences, limiting its ability to explain whether tourists view these experiences as alternatives or complementary choices. Future research could model both perceptions together to identify factors associated with a preference for either category. Although past experience significantly moderated the intention–perception relationship, its treatment as a single construct may conceal differences between enjoyable, challenging and unpleasant experiences. Further studies could distinguish these dimensions and examine whether experience gained in one activity shapes perceptions of another. The model also excluded personality characteristics that may explain different responses to similar adventure opportunities. Integrating the Big Five traits openness to experience, conscientiousness, extraversion, agreeableness and neuroticism could clarify their direct and moderating roles. Finally, the focus on domestic tourists in Goa limits comparisons across visitor groups. Future studies could compare domestic and foreign tourists through multigroup analysis, after establishing measurement invariance, to assess whether the proposed relationships differ between these populations.



Conclusion

This study examined domestic tourists' behavioural intention and hard adventure tourism perception in Goa using an extended Theory of Planned Behaviour framework. All five hypotheses were supported. Attitude emerged as the strongest antecedent of intention, followed by subjective norms and perceived behavioural control. Behavioural intention was positively associated with hard adventure tourism perception, and past experience strengthened this relationship, highlighting the relevance of experiential differences in tourists' evaluations. The IPMA identified attitude and past experience as potential improvement priorities because of their relatively substantial importance and low performance. These findings suggest that favourable evaluations, social encouragement, perceived capabilities and previous experience collectively inform adventure tourism decision-making. The study extends the application of TPB to a perceptual outcome and offers guidance for developing appropriately supervised experiences and communication that support informed tourist choices.

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