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PSYCHOLOGICAL FACTORS INFLUENCING TOURISM BUSINESS PROMOTION AND SALES WITH AN AI-ASSISTED PROMOTIONAL FRAMEWORK

L. Chandni^{1*}, Dr.R. Sangeetha²

^{1*}Department of Management (Tourism and Hospitality), Bharath Institute of Science and Technology, Chennai, Tamil Nadu, India. e-mail: chandni.veronika@gmail.com,
orcid: <https://orcid.org/0009-0008-2893-0783>

²Associate Professor & Head, Department of Tourism and Hospitality, Bharath Institute of Science and Technology, Chennai, Tamil Nadu, India.
e-mail: sangikart1976@gmail.com, orcid: <https://orcid.org/0000-0003-2860-5178>

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SUMMARY

In recent times, tourism organizations have been requiring personalized promotional plans based on the preferences, behavior, and psychology of tourists. Traditional methods of promotion often target larger customer segments, which may not always suit individual tourism contexts. In such scenarios, this study will try to bridge the gap by considering the aspects of psychology that are relevant to tourism promotions and coming up with an AI-assisted tourism promotional decision-making framework. The study made use of a quantitative cross-sectional research design with the use of a questionnaire distributed among 183 respondents who had involvement with tourism or travel activities at selected places in India. Four psychological aspects – Celebrating Success (CS), Feeling Loneliness (FL), Extreme Happiness (EH), and Feeling Badly or Sadly (FBS) were considered together with other demographic and behavioral characteristics. Both frequency and percentage analyses were used in profiling respondents' purpose, preferences, and behavior. Respondents were made up of 50.8% males and 49.2% females. Activities such as culture, sport, religion, and recreation accounted for the highest proportion of businesses (29.5%). Leisure was the most popular travel purpose (35.5%), followed by shopping/purchase related travel (24.6%). Respondents preferred traveling during April (20.2%). Occasional travel was the most common travel behavior (44.8%). Semi-packages were the most favored form of travel (31.1%), followed by packages (30.1%). Personal vehicle was the preferred mode of transport (15.8%), followed by intermittent halt travel (13.1%) and train travel (12.6%). The results show that there is a lot of diversity in terms of tourism preferences and travel behaviors, and therefore there should be more context-specific promotion efforts. The proposed framework makes use of psychological feature representation, promotion response prediction, tourist segmentation, recommendation, and feedback-based learning. As a conceptual framework, the AI aspects of the model need to be empirically trained and validated through future research.

Key words: *psychological factors, tourism promotion, business promotion and sales, tourist behavior, artificial intelligence, personalized tourism, tourism marketing.*

INTRODUCTION

Tourism plays an integral part in the growth and development of the economy due to demand creation in transport, accommodation, recreation, and many more. Tourists' decision-making process does not depend on destination features or economic factors only since they can be affected by psychological and emotional state of tourists influencing their preferences, reactions to the promotions, and purchases. Thus, it is crucial for tourism entrepreneurs to understand psychological aspects of tourism for developing more relevant promotions. This research pays attention to four psychological aspects: celebrating success, feeling lonely, extreme happiness, and feeling badly/sadly and analyses the connection between them and business promotion and sales in the sphere of tourism.

The study seeks to conduct a demographic analysis based on percentage analysis and analyze the use of Artificial Intelligence (AI) in the field of tourism industry development. The study finds demographic patterns among respondents and explores the use of AI in the process of tourism promotion and personalization of it.

The importance of this research is about making connections between the psychology of tourists and the marketing and promotion activities in the tourism sector. Although there have been some studies about the influence of psychology on tourists and tourism entrepreneurship, there have not been many studies focusing on their connection to the promotion and sale of businesses. Therefore, the main importance of this research is the empirical investigation of the connection between these psychological variables through questionnaire data collected from 183 participants and regression analysis. Moreover, an AI-enabled psychological tourism promotion model is suggested as a possible future application for using the information of psychology and behavior of people in personalized tourism suggestions.

The rest of the essay is structured as follows. Section 2 covers the literature review and highlights the research gaps. The AI-powered psychological tourism promotion framework is presented in Section 3. Section 4 explains the research methodology that covers the research design, sampling, questionnaire, variables, data collection, and data analysis. Descriptive statistics will be presented in Section 5, and the discussion of the results and implications is provided in Section 6. Section 7 concludes the study.

LITERATURE REVIEW

It has been found from recent research that Artificial Intelligence (AI) is increasingly contributing to tourism due to intelligent decision support, recommendations, marketing, and customer engagement. There are opportunities and threats arising due to intelligent systems, such as accessibility and interactions on one hand, and issues like trust, privacy, transparency, and implementation on the other hand [1][19]. Applications of AI in travel decision-making and tourism product selling are also showing the capability of intelligent technology to fit tourists with appropriate products and marketing strategies [2]. The new promotional tools, like AI, virtual and augmented reality, social media, online reviews, and influencer communication, have widened the channels through which tourism organizations communicate with prospective customers [3]. There is systematic evidence available that AI is helpful in enhancing customer engagement and social-media marketing [4].

Research studies increasingly relate AI to consumer psychology and personalized tourism experiences. The significance of psychological and behavioral data in the study of consumer behavior and the formation of effective marketing strategies through AI-based marketing research becomes evident [5][16]. Personalized AI suggestions are related to improvements in customers' experience and life satisfaction in the context of luxury tourism, while the acceptance of conversational AI is determined by the tourists' interaction and psychological responses [6][7]. At the same time, AI-driven content for tourism can influence emotional arousal and further tourism decisions [8][10][12]. Therefore, emotional and psychological states can serve as useful indicators for the promotion of tourism services [18].

In further research, emphasis is placed on AI-based tourism marketing, smart destinations, analytics, and personalization [9][11][13]. Consumer behavior research shows that user-related and behavioral attributes may affect purchase intention toward AI-powered products [14]. AI-created visual content,

digital marketing, metaverse-based tourism experience, and big data analytics are also perceived as important tools for modern tourism promotion [15][17]. Strategic AI frameworks also show that intelligent marketing systems can be useful for customer targeting, personalization, and decision-making optimization [20][21].

While the existing literature proves the strong connection between AI, tourism marketing, personalization, consumer behavior, and psychological response, little empirical work has been done to investigate the connection between tourists' psychological factors and business promotion and sales within the tourism industry. Additionally, while there are a number of AI-related studies, the majority investigate technology adoption, customer engagement, content generation, or personalization but do not consider experimentally tested psychological factors as an input for tourism promotion. Thus, this research aims to fill in this gap and examine the psychological factors related to business promotion and sales empirically and then build up an AI-based tourism promotion framework.

AI-ASSISTED PSYCHOLOGICAL TOURISM PROMOTION FRAMEWORK

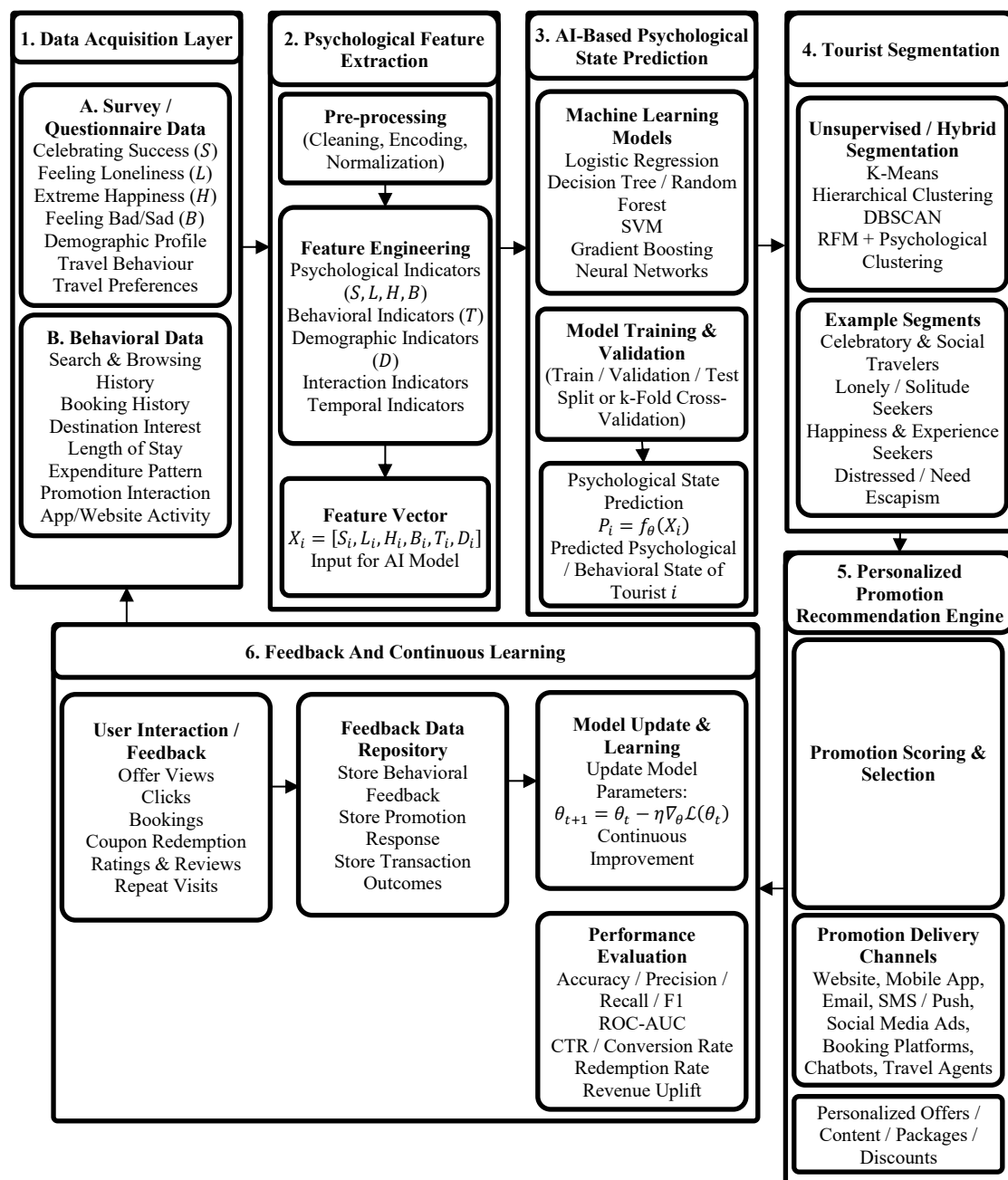


Figure 1. Proposed AI-assisted psychological tourism promotion framework

The descriptive findings of the study show the presence of variety in tourists' psychological traits, travel motives, preferences, travel frequencies, accommodation selections, and travel modes. In order to turn these characteristics into a smart tourism application, an AI-supported psychological tourism promotion framework is introduced. The framework is considered to be an AI-powered decision-support system that utilizes psychological, behavioral, demographic, and travel information to support tourism promotion. It should be noted that the presented framework does not include the experimental training of an AI algorithm in the present study; it is just a conceptual way to include tourist characteristics in the decision-making process of promotion.

As shown in figure 1, the framework includes the following six main steps: (i) data gathering, (ii) psychological and behavioral feature extraction, (iii) promotion response prediction, (iv) tourists' segmentation, (v) personalized promotion recommendation, and (vi) promotion delivery with feedback-driven learning. Privacy, transparency, ethical AI, and data governance are cross-cutting requirements within the framework

Figure 1 highlights the conversion of tourist information into personal recommendations for promotion purposes. The model starts off by collecting information about the tourists, extracts psychological and behavioral attributes, determines the reaction to tourism promotions, classifies the tourists based on their attributes, formulates promotion recommendations, and further improves future recommendations based on feedback from the tourists.

Data Acquisition and Psychological Feature Representation

This suggested model will be capable of integrating data collected through questionnaires with behavioral data collected through tourism systems that are not related to the clinical field. Examples of data inputs may include the frequency of travels, booking patterns, search of destinations, preferred activities, accommodation choices, promotions interaction, and responses to tourism offers.

The psychological traits under investigation in this study, i.e. Celebrating Success (CS), Feeling Loneliness (FL), Extreme Happiness (EH), and Feeling Badly or Sadly (FBS), along with behavioral and demographic traits will constitute the feature vector of a tourist and is represented in equation 1:

$$X_i = [CS_i, FL_i, EH_i, FBS_i, B_i, D_i] \quad (1)$$

Where CS_i , FL_i , EH_i , and FBS_i represent the four psychological dimensions for tourist i , B_i denotes travel-related behavioural characteristics, and D_i represents demographic characteristics. These psychological variables are intended only for tourism behavioural and promotional analysis and should not be interpreted as clinical psychological diagnoses.

AI-Based Promotion-Response Prediction

Rather than predicting the same psychological attributes that are used as input data, the framework presented above utilizes the feature representation to predict a specific reaction that the tourist will have to a given tourism promotion. This can be expressed mathematically for tourist i and tourism promotion p as equation 2:

$$\hat{R}_{ip} = f_{\theta}(X_i, P_p) \quad (2)$$

Where $\hat{R}_{ip}$ denotes the predicted response of tourist i to promotion p , f_{θ} represents the selected AI model, X_i denotes the tourist feature vector, and P_p represents the characteristics of promotion p . Depending on the available behavioural data, the response may represent the likelihood of viewing, clicking, booking, redeeming an offer, or responding positively to a promotion.

Models under consideration might include logistic regression, decision trees, random forests, support vector machines, gradient boosting algorithms, and neural networks. The proper model needs to be

chosen and verified based on independent data on tourist behavior in future application. None of the modeling and prediction performance is provided in the current research.

Tourist Segmentation and Personalized Recommendation

Promotional response predictions can be applied to create tourist segments. For instance, tourists showing more tendencies for celebration and social behaviors may be targeted for festival deals, group tour packages, recreational packages, or events-based packages. Tourists who have traits such as loneliness may be targeted for social packages, group deals, community packages, or guided tours. In the same way, tourists showing strong positive emotional response tendencies may be offered experience deals or premium deals.

Promotional package selection can be mathematically formulated using equation 3:

$$p_i^* = \arg \max_{p \in P} [\alpha \hat{R}_{ip} + \beta E_{ip} + \gamma M_{ip} - \lambda C_{ip}] \quad (3)$$

Where p_i^* denotes the selected promotion for tourist i , $\hat{R}_{ip}$ represents the predicted response, E_{ip} denotes expected engagement, M_{ip} represents the psychological-context matching score, C_{ip} denotes promotional cost, and $\alpha, \beta, \gamma, \lambda$ are weighting parameters. The formulation enables tourism businesses to balance expected tourist engagement, contextual relevance, and promotional cost when selecting offers.

Promotion Delivery and Feedback Learning

The recommendations will be provided using tourism websites, apps, booking sites, email, and other digital media channels. Behavioral feedback will include actions such as offers viewed, clicks, bookings made, coupons redeemed, and revisits. Feedback will then be incorporated into the recommendation model as shown in equation 4:

$$\theta_{t+1} = \theta_t - \eta \nabla_{\theta} \mathcal{L}(\theta_t) \quad (4)$$

Where θ_t represents the model parameters at iteration t , η denotes the learning rate, and $\mathcal{L}$ represents the model loss function. This feedback mechanism provides a basis for continuously adapting promotional recommendations as additional behavioural information becomes available.

Evaluation and Validation Strategy

The suggested AI system needs independent empirical validation before its application. In the future application, an appropriate behavioral dataset can be split into training, validation, and testing sets, with the application of cross-validation when needed. For prediction evaluation, accuracy, precision, recall, F1-Score, and ROC-AUC can be used in case of classification problems. For promotional recommendation evaluation, click-through rate, conversion rate, coupons' redemption rate, booking reaction, and repeat purchase behavior can be assessed.

The effectiveness of personalized promotions needs to be compared with the effectiveness of non-personalized promotional campaigns in order to understand whether the use of context improves the results. Notably, the methods of AI evaluation mentioned above are the future validation procedure, but they are not reported as experimental findings of the current research.

In other words, the suggested framework is considered to be an extension of the currently conducted survey from the theoretical perspective. In the first place, the current study presents descriptive insights into tourists' characteristics and behavior, whereas the AI framework represents the tool that will enable further personalization of tourism promotion based on the information collected in the course of surveys. Further studies need to test the efficiency and effectiveness of the framework.

RESEARCH METHODOLOGY

Research Design

A quantitative, cross-sectional research design was used to analyze the effect of psychological and behavioral elements of tourists on tourism business promotion and sales. Primary data were obtained at one point in time through a structured questionnaire survey. The study considered four psychological factors that arose from the context of the study, namely celebrating success, loneliness, extreme happiness, and feeling badly/sadly. These factors were treated as the independent variables in this research design, whereas business promotion and sales were the dependent variables. This particular research design was chosen because it allows the psychological traits of tourists to be quantitatively analyzed.

Population, Sampling and Participant Selection

The study's target population consisted of people who have had some experience in traveling due to tourism and other tourism services. Data collection took place in various tourist locations in different states in India. There were a total of 183 respondents who provided the required data. The process of data collection involved the use of random sampling in order to minimize biases in selecting respondents and give all respondents a chance to take part in the survey regardless of any of their demographic characteristics.

The criterion for eligibility in the study was being willing to participate voluntarily and having some experience in tourism or travel. People who did not provide sufficient data to fill the questionnaire were not used in the study.

Sample Size

The final sample analyzed consisted of 183 respondents. The sample size was determined depending on the number of respondents available during the research period for the selected tourist spots. The study investigates a limited number of predictors through regression analysis; hence, the available sample has significantly more observations compared to the number of predictors in each regression analysis model. However, it is important to note that the sample size used in the research has geographic limitations and therefore cannot be viewed as a nationally representative sample. There is a need for future studies to carry out a priori power analysis.

Questionnaire Development

A structured questionnaire was designed to collect information concerning the demographics, tourism travel details, psychological aspects, and perceptions regarding tourism business promotion and sales. These questions were categorized under the areas of respondents' profile, travel behavior and preference, psychological experience, and tourism promotion and sales-related perception. Four aspects were considered in the psychology category, namely: celebration of success, loneliness, happiness, and bad or sad feelings.

The questions were designed using language that is understandable to respondents with respect to their tourism experiences and perceptions. The questionnaire was then applied to the respondents related to tourism activities in the selected regions. The data collected were analyzed after coding and converting them into numerical form.

Measurement of Variables

The research uses five significant variables to test the relationship between tourists' psychological attributes and tourism businesses' performance. CS refers to positive emotional responses related to success or celebrations, while FL refers to feeling socially isolated or lacking companionship. EH indicates a very positive emotional response that may affect the decision to travel and respond to promotion. FBS, on the other hand, indicates negative emotions like feeling bad and sad, which may

affect tourism decisions. These four psychological attributes are taken as independent variables, while Business Promotion and Sales (BPS), which refers to the response to tourism promotion and sales activities, is considered the dependent variable.

These four psychological attributes have been used as independent variables, while BPS has been taken as the dependent variable. The conceptual relationship can be shown by equation 5:

$$BPS = f(C, S, F, LEHFBS) \quad (5)$$

Accordingly, the study examines whether variations in psychological factors are associated with variations in tourism business promotion and sales.

Data Collection Procedure

The primary data were gathered by means of a structured questionnaire from 183 participants who visited the chosen tourist spots. Participants were selected during the course of the study and were offered enough information about the nature of the study before filling out the questionnaire. The answers were gathered anonymously for research purposes only. The demographic and travel-related data were analyzed with the help of percentage analysis, whereas regression analysis was utilized to investigate the connection between psychological factors and business promotion/sales.

Instrument Validation

Analysis of content and clarity of the questionnaire preceded the main analysis of the data collected. The formulation of the questions was analyzed to make sure that the items were in accordance with the psychological and tourism-related constructs under investigation. Neither reliability coefficients nor construct validity statistics have been presented in the present manuscript; hence, such statistics must not be reported unless the corresponding analyses have been performed. Internal consistency may be measured with Cronbach's alpha coefficient, whereas exploratory factor analysis will allow one to study the factor structure. Construct validity may then be evaluated.

Data Analysis

Percentage analysis was applied in describing the demographic and travel attributes of the respondents. Regression analysis was conducted to determine the relationship between psychological aspects and business promotion and sales. The models were formulated by using business promotion and sales as the dependent variable while psychological attributes as independent variables. The significance level for testing the hypotheses was set to the 5% significance level ($\alpha = 0.05$). It is imperative to test regression assumptions before interpreting the coefficient of the model.

RESULTS

DEMOGRAPHIC PROFILE AND PERCENTAGE ANALYSIS

The respondents included in the survey totalled 183 and were from various backgrounds in terms of their businesses related to tourism, education, and experience in the field of tourism. The demographic characteristics of the respondents are shown in table 1 below. The gender ratio was quite balanced in that there were 93 males (50.8%) and 90 females (49.2%).

Regarding the profile of businesses, the highest proportion of respondents came from cultural, sports, religious, and other recreational-related services, which formed 54 respondents (29.5%). This was followed by food and beverage-related services (33 respondents (18.0%)) and passenger transport-related services (30 respondents (16.4%)). Accommodation-related services and travel agencies or reservation services made up 10.4%. The health and medical-related services contributed 9.8%, whereas tourism-related products were 5.5%.

As far as education is concerned, there were most participants among diploma holders (62, 33.9%), then come those having a degree (55, 30.1%). The number of uneducated participants was 40 (21.9%), and those who have completed their education till school level are 26 (14.2%). When the study talk about experience within the tourism industry, then 62 respondents (33.9%) had experience from 0 to 5 years, 55 (30.1%) from 5 to 10 years, 40 (21.9%) from 10 to 15 years, and 26 (14.2%) having more than 15 years of experience. Overall, the sample represents a diverse range of tourism-related occupational and experiential backgrounds.

Table 1. Demographic informations

Gender profile	Respondent (n = 183)	Percentage
Male	93	50.8%
Female	90	49.2%
Business Profile		
Accommodation Related Services	19	10.4%
Food and Beverage-Related Services	33	18.0%
Passenger Transport-Related Services	30	16.4%
Travel Agencies and Other Reservation Services	19	10.4%
Cultural, Sports, Religious and Other Recreational-Related Services	54	29.5%
Health and Medical Related Services	18	9.8%
Tourism Related Products (Garments, Footwear, Water Bottle)	10	5.5%
Educational Experience		
Diploma	62	33.9%
Degree	55	30.1%
Uneducated	40	21.9%
School Level Only	26	14.2%
Experience Level in Tourism Industry		
0-5 Years	62	33.9%
5-10 Years	55	30.1%
10-15 Years	40	21.9%
Above 15 Years	26	14.2%

Travel Characteristics of Respondents

Table 2 provides a breakdown of the travel intentions, preferred travel month, travel frequencies, and hotel preferences among the respondents. Leisure and recreation were found to be the most common travel intention with 65 respondents (35.5%), followed by travel for the purpose of shopping or purchases with 45 respondents (24.6%). Traveling for health and medical reasons made up 12.6%, business travels made up 10.9%, pilgrimages and religious activities 7.7%, and education/training/teaching related travel 7.1%, with 1.6% citing social events.

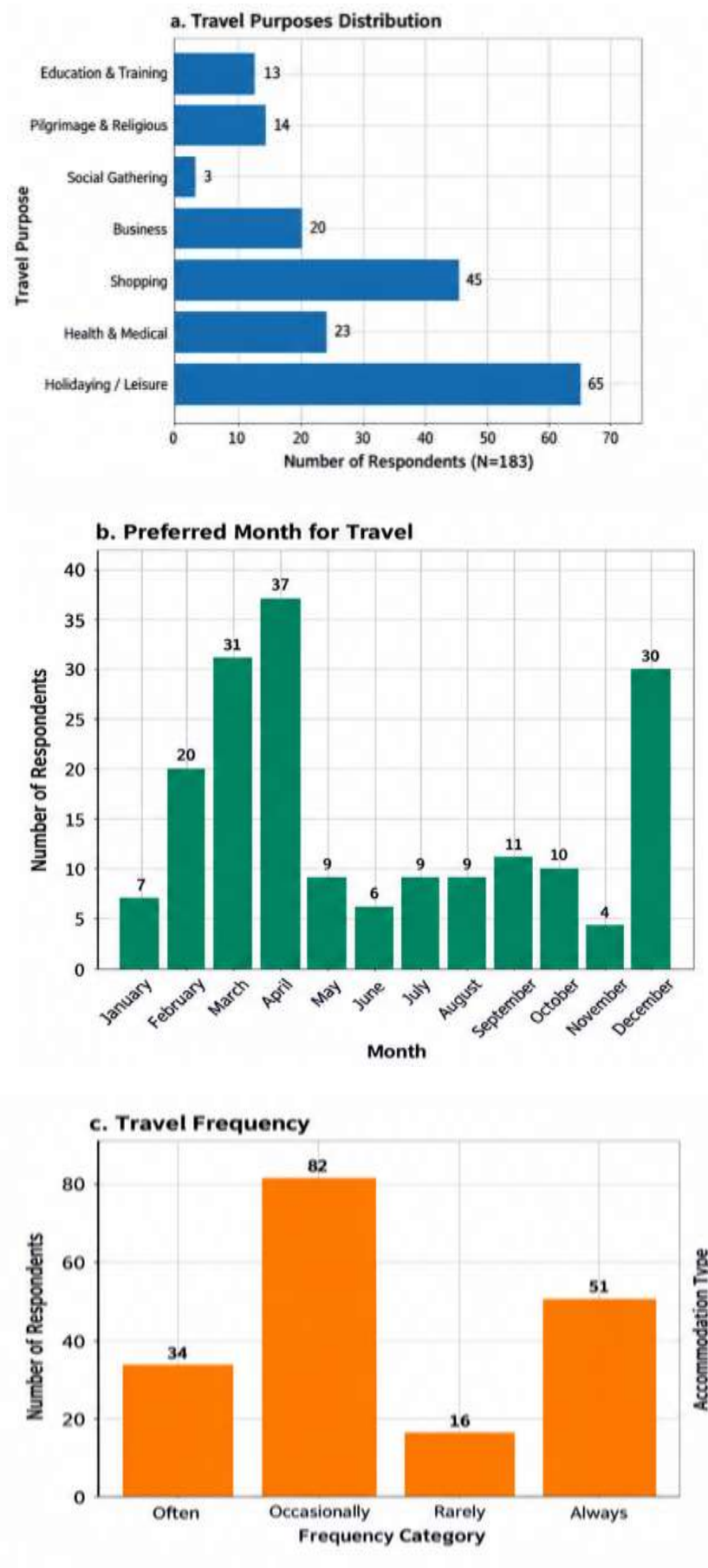
The most commonly preferred travel month was April with 37 respondents (20.2%). March had 31 respondents (16.9%) while December had 30 respondents (16.4%). February made up 10.9%, September 6.0%, October 5.5%, May and July each 4.9%, January 3.8%, June 3.3%, and November 2.2%.

In terms of travel frequency, "occasional travel" was the highest response with 82 (44.8%) respondents opting for the answer. "Always" (27.9%) and "often" (18.6%) followed and only 8.7% travelled rarely. In terms of accommodation preferences, rented houses were the most common choice with 39 respondents (21.3%), followed by accommodation with friends/relatives or as paying guest (20.2%), guest house (19.7%). The other choices were hotels (12.0%), religious /charitable guest rooms (10.9%), other accommodation/dormitory (7.7%) and those who did not wish to stay overnight (8.2%).

Table 2. Travel characteristics of respondents

Travel Purposes	Respondent (N = 183)	Percentage
Holidaying purpose - Leisure time and Recreation	65	35.5%
Health & Medical Purposes	23	12.6%
Shopping/ purchase purposes	45	24.6%
Business purpose	20	10.9%
Social gathering	3	1.6%
Pilgrimage & Religious Ritual Activities	14	7.7%
Learning, Teaching, Education & Training related	13	7.1%
Preferred Month for Travel		
January	7	3.8%
February	20	10.9%
March	31	16.9%
April	37	20.2%
May	9	4.9%
June	6	3.3%
July	9	4.9%
August	9	4.9%
September	11	6.0%
October	10	5.5%
November	4	2.2%
December	30	16.4%
Travel Frequency		
Often	34	18.6%
occasionally	82	44.8%
rarely	16	8.7%
always	51	27.9%
Staying Preference		
Hotel	22	12.0%
Guest House	36	19.7%
religious or charitable guest rooms	20	10.9%
Rented House	39	21.3%
Friend & Relative / Paying Guest	37	20.2%
Others / dormitory	14	7.7%
Not willing to overnight stay	15	8.2%
Total	183	100.0%

Figure 2 (a) depicts that the most popular reason for travel is Holidaying/Leisure with 65 respondents and then shopping comes next with 45 respondents. Figure (b) reveals that April is the most favored month for travel with 37 respondents, while March ranks second with 31 respondents and December with 30 respondents. Figure (c) illustrates that occasional is the most popular category of frequency with 82 respondents and then always with 51 respondents. Figure (d) illustrates the choice of stay with rented houses ranking first with 39 respondents, while friends/relatives/paying guests ranking second with 37 respondents.



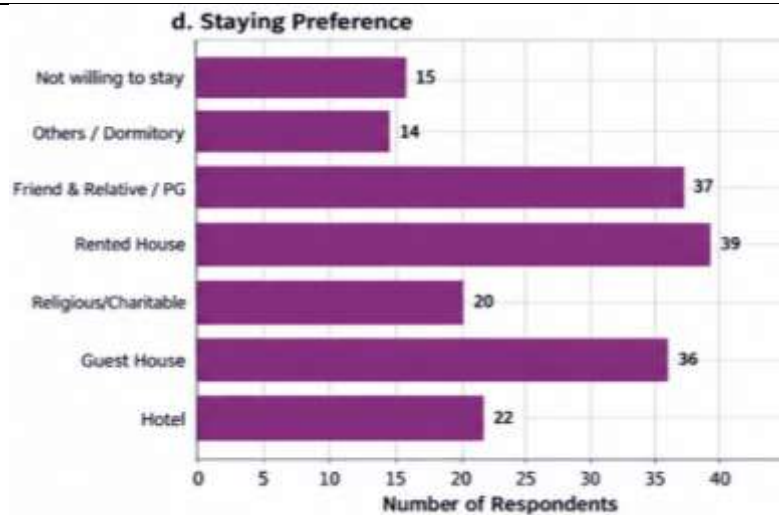


Figure 2 (a-d). Distribution of respondents by travel purpose, preferred travel month, travel frequency, and staying preference

Preferred Trip Types and Modes of Travel

Table 3 below shows how the respondents preferred their trip arrangements and means of transportation. Semi-packaged trips were most preferred by the respondents, a total of 57 respondents (31.1%) while packaged trips were most second preferred by 55 respondents (30.1%). Casual or impulsive trips constituted 23.5% while customized or optional trips were 15.3%.

Table 3. Preferred type of trip and mode of travel

Preferred Type of Trip	Respondent (n = 183)	Percentage
Package	55	30.1%
Semi Package	57	31.1%
Customized / Optional	28	15.3%
Casual / Unplanned	43	23.5%
Preferred Mode of Travel		
Bus	22	12.0%
by Walk	20	10.9%
Car / Personal Vehicle	29	15.8%
Train	23	12.6%
Ship / Boat	11	6.0%
Air / Flight	7	3.8%
Two-Wheelers	13	7.1%
Bicycle	6	3.3%
Ola / Uber (Rental)	7	3.8%
Yulu / Electric Vehicle (Rental)	6	3.3%
Multimode	15	8.2%
Intermittent Halt	24	13.1%
Total	183	100.0%

In the case of various means of travel, the most preferred was the car/personal vehicle which amounted to 29 respondents (15.8%). Intermittent-halt trips constituted 13.1% while train trip was 12.6% and bus trips were 12.0%. Walking made 10.9%, two-wheeler was 7.1% and ships/boats was 6.0%. Air traveling was 3.8% and same for Ola/Uber renting while bicycle and Yulu/electric vehicles renting both made 3.3%. Multi-mode trips amounted to 8.2%.

Based on the above descriptive findings, it can be seen that the respondents had different preferences when it comes to tourism in terms of purpose of travel, season, frequency of traveling, accommodation,

trip arrangements and transport mode. The relatively higher preference for leisure travel, semi-packed and packed trips and personally controlled transport is good contextual information for tourism organizations in the preparation of their promotions.

Psychological Factors and Tourism Promotion

The dimensions of psychology included in the study were Celebration of Success, Feeling Lonely, Extreme Happiness, and Feeling Badly or Sad. These dimensions offer the psychological rationale behind tourists' variations in promotional behavior and choices. Therefore, the survey questions included both psychological experiences and demographic and travel information.

Descriptive results obtained from the survey respondent profiles and travel characteristics will form the empirical ground for the suggested AI-assisted promotional strategy framework. The differences between travel purposes, travel frequency, desired time of travel, accommodations, trips, and transportations confirm that tourism consumers are heterogeneous in nature. This heterogeneity justifies the need for promotional techniques that include individual traits and behavior contexts.

Summary of Findings

In summary, the analysis of the 183 respondents reveals that there is great diversity in terms of background and travel behaviour of people related to tourism. The respondents were fairly evenly divided by their gender and came from various categories of tourism businesses and various levels of experience. Recreational and leisure was the leading motive for travel, April was the favourite travel month, travel on an occasion was the most typical travel frequency, and renting of houses was the leading type of accommodation chosen. Semi-package and package trips were the most preferred types of trips, whereas cars or private cars were the most commonly used mode of travel.

Four psychological dimensions researched within the study serve as the theoretical basis for including psychological and behavioural aspects in tourism promotion. These empirical observations are then converted into the proposed AI-assisted framework for tourist profiling, segmentation, personalized promotion, and feedback-based promotional learning. The AI framework is conceptual and represents a future application rather than an experimental one within this study.

DISCUSSION

From the above results, the study can infer that the psychological state of the tourists is important in promoting and selling the business related to tourism. This implies that the emotional states of the tourists play a role in affecting their reactions to the tourism commodities and promotions. Thus, there is need for more consideration of the psychological aspects while developing marketing plans for tourism. However, the findings obtained from the statistical analysis should be treated with caution since the degree of freedom of the regressions obtained does not tally with the number of samples (183).

The promotion campaign, tourist package deal, discounts, and personalized communication can be developed by the tourism entrepreneur on the basis of the behavioral and psychological attributes of tourists. Positive emotional conditions can be utilized to develop experience-based promotion campaigns, whereas personalization of communication can assist in coping with the problem of loneliness or any other negative emotional condition of tourists.

This study has been conducted on the basis of survey data collected through a questionnaire from 183 respondents; hence, it is prone to self-reporting bias and sampling error. In addition, no statistics of reliability and validity have been mentioned with respect to the measurement instrument used. Moreover, AI has not been computationally implemented and experimentally validated, and the regression statistics need to be checked against the original data set.

Future research must use large sample sizes, appropriate scale validation techniques, and either longitudinal or experimental research designs. Future research should conduct proper tests of reliability and validity and repeat the regression analysis based on respondent-level data. The future research may

adopt the proposed AI framework with actual behavioral data related to tourism and evaluate its efficacy in terms of personalization, engagement, conversion, and sales.

CONCLUSION

The research explored psychological factors pertinent to the tourism promotion and selling aspect, and a framework based on AI for personalized promotion of tourism business was put forward. A quantitative cross-sectional survey was conducted involving 183 people, frequency and percentage method was employed in analyzing the demographics and travel related factors. It is evident that there is a diverse demographic makeup of the tourism-oriented respondents since there is a relatively balanced gender composition among males (50.8%) and females (49.2%). Culture, sports, religious and recreational tourism business activities accounted for the highest proportion (29.5%). Leisure was the most mentioned travel objective (35.5%) followed by shopping or purchase oriented travel (24.6%). The most favored travel month was April (20.2%), and occasional travel was the most frequent type of travel (44.8%). In terms of travel preference, the most favourite type of travel is semi-package travel (31.1%), followed by package travel (30.1%). These patterns of description demonstrate how critical it is to take into account traveller demographics and psychology while formulating tourism promotional strategies. According to the components of this study, the suggested AI-driven model encompasses features related to psychology, promotion reaction prediction, tourism segmentation, recommendation, and feedback learning. This model is conceptual, and has not been empirically developed or tested in this study. For future studies, it is recommended to use large and geographically dispersed samples together with longitudinal data sets in order to investigate the dynamics of psychological states and consumer reactions. Moreover, future investigations should be devoted to validating constructs and training machine learning algorithms on the basis of tourism interaction data sets. Such an evaluation will give some insights into the practicality of the proposed framework.

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