



Visitor Preferences on Ecotourism Attributes: A Study on Indonesian Ecotourism Destinations

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Abstract. This study focused on a specific group of ecotourism visitors and their preferences at four selected locations in Indonesia. A descriptive-quantitative method was employed to analyze data collected from 120 participants through questionnaires, using convenience sampling techniques. The study identified the psychographic characteristics of ecotourism visitors and compared the preferences of two visitor groups regarding ecotourism attributes. It found differences between the estimated and actual preferences of the two groups for each attribute across the four ecotourism destinations. The research concludes with the significance of a destination's unique attributes to prospective ecotourism-related visitors in the selection process.

Keywords: Destination attributes, Ecotourism, Psychographic characteristics, Tourism selection process, Visitor preferences.

1. INTRODUCTION

Preliminary estimates from the UNWTO reveal a 4% increase in global tourism in 2021 compared to 2020 (415 million versus 400 million). However, despite this growth, international tourist arrivals (overnight visitors) remained 72% lower than pre-pandemic levels in 2019, marking the most severe tourism crisis ever recorded, with a 73% drop in international arrivals in 2020 (UNWTO, 2022).

The COVID-19 crisis has profoundly impacted the tourism industry, particularly in the ecotourism segment, leading to significant changes in destination management, visitor preferences, and tourist decision-making processes (Soliku et al., 2021; Samdin et al., 2021).

Ecotourism is commonly associated with the preservation of natural and cultural resources as a priority. It involves visiting relatively unknown natural areas to appreciate landscapes, learn about nature, and engage in indigenous culture while safeguarding the ecosystem (Lee & Jan, 2019; Khanra et al., 2020). This implies that the guiding principles of ecotourism prioritize the active conservation of natural resources, the integration of indigenous cultural knowledge, and activities aimed at enhancing community welfare (Zong et al., 2017).

Research on ecotourism has explored various areas such as market segmentation, travel behavior patterns, benefits, travel motivations, and activities. It has also focused on quantifying ecotourists' travel experiences, which is crucial for ecotourism products (Lu & Stepchenkova, 2012). Market segmentation is a widely used technique for identifying specific markets for different tourism products and services (Sheena et al., 2015; Cini et al., 2012; Weaver & Lawton, 2002). It is broadly recognized as a key criterion for segmenting tourism demand (Carvache-Franco et al., 2019). When visitors travel to various destinations, they may have diverse motives and preferences, including the reasons for choosing that destination. They may seek experiences that enhance the quality of their trip and look for destination attributes that meet their expectations (Sheena et al., 2015; Cini et al., 2012; Carvache-Franco et al., 2019).

In the context of Indonesian ecotourism, the limited availability of information sources about ecotourism destinations can hinder the ability to provide visitors with personalized service attributes. Despite efforts by ecotourism providers to use segmentation to reach target markets, visitors may not receive the desired attributes they expect. Given these challenges posed by the attributes of ecotourism destinations, which create uncertainties in understanding visitors' preferences, this study aims to address several questions:

1. How can visitor preferences be classified based on psychographic segments in ecotourism destinations?
2. How do the ideal combinations of attributes in ecotourism locations meet the expectations of different types of visitors?
3. What attributes of ecotourism destinations are considered important by each visitor segment?

By addressing these questions, the study can provide valuable insights for ecotourism providers in Indonesia to better understand their visitors' preferences and tailor their services to meet these expectations. Ultimately, this will enhance the overall ecotourism experience and contribute to the growth of the industry.

2. LITERATURE REVIEW

2.1. Ecotourism

Tourism is defined as a social, cultural, and economic phenomenon that entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or non-residents) and tourism has to do with their activities, some of which involve tourism expenditure" (UNWTO, 2016).

According to Blamey (2001), the first formal definition of ecotourism is generally credited to Ceballos-

Lascuráin, who defined it as: traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas.

Over the last decade, a consensus has developed about the core concepts of ecotourism. According to Blamey (2001), who provided substantial contributions to the definition of the term, ecotourism is a kind of tourism that is (a) primarily focused on nature, (b) educational, and (c) environmentally and socioculturally sustainable, among other features.

The first criterion points out that ecotourism is most commonly linked with relatively undisturbed natural ecosystems, particularly those that are maintained in publicly accessible protected areas such as national parks. Ecotourism, on the other hand, may focus on certain flora and fauna rather than the overall ecosystem. Likewise, cultural attractions are included as a supplementary part of the ecotourism product. Ecotourism that is related to cultural attractions such as indigenous cultures and archaeological sites, which are both typical examples.

The second criterion states that participants in ecotourism must commence some kind of learning as a consequence of their interactions with relevant sites. This may vary from more formal results (such as student field excursions that include exams) to more informal information absorption and processing through guidebooks, signboards, or simple observations. Ecotourism is different from other nature-based activities like adventure and 3S (sea, sand, and sun) tourism, which use nature as a backdrop for thrill-seeking or pleasure-seeking.

The third criterion for ecotourism is that it is anticipated to be sustainable on an environmental and sociocultural level. The issues are that there are too many unknowns and concerns around the criterion to state unequivocally that any single ecotourism product is sustainable. Therefore, ecotourism products need to comply with established sustainability standards.

Weaver (2001) proposed a comprehensive definition of ecotourism, encompassing the three criteria mentioned earlier, along with additional factors. Ecotourism is defined as a subset of tourism that promotes awareness and appreciation of the natural environment in conjunction with the surrounding culture. It is perceived to be environmentally and socioculturally sustainable as it adheres to guiding principles and benefits natural and cultural resources while ensuring operational continuity. The last component of this criterion emphasizes the financial viability of ecotourism to sustain destinations over time. Despite improvements in ecotourism criteria and standards over time, there are still instances where tourism products are challenging to classify.

Similarly, Chiu et al. (2016) propose that ecotourism is a form of natural travel that places a deliberate emphasis on natural experiences, knowledge, and the dynamic environment. Stamation and colleagues (2020) define ecotourism as environmentally responsible travel to relatively undisturbed locations to experience and enjoy nature and its associated cultural characteristics, past and present. This entails promoting conservation and environmental sustainability while ensuring no negative impact on local residents. Active interaction with local communities must also provide social and economic benefits. Therefore, ecotourism development may involve the participation of anyone interested in contributing to ecotourism development and preservation. For example, community-based ecotourism emphasizes community participation and control over ecotourism development and management (Wondirad et al., 2020). Such ecotourism development offers various benefits, not only for the local community economy but also for the environment by encouraging low-impact and non-consumptive practices (Choi et al., 2020).

Segmenting the target market appropriately can attract new visitors through marketing efforts or expand the product line (Weaver & Oppermann, 2000; Weaver, 2001). For instance, understanding the sociodemographic characteristics of "ecotourism" can provide insights into the evolving traveler profile. The ecotourism sector is also segmented based on consumer behavior and motivation, recognizing a continuum from "hard" to "soft" ecotourism along these characteristics.

Weaver (2001) highlights hard ecotourism as the ideal type, characterized by a high level of commitment to environmental concerns and support for long-term sustainability efforts. Hard ecotourists prefer physically and intellectually challenging activities in wilderness environments, often traveling for extended periods in small groups. They seek intimate encounters with nature and require minimal service during their experiences, often planning their own travel arrangements as free and independent travelers (FIT).

In contrast, soft ecotourism exhibits a more moderate level of environmental commitment and is comfortable with achieving sustainability goals. Soft ecotourists often integrate ecotourism into multi-purpose agendas, and in tourist destinations, they typically engage in resort-based mass tourism activities with short visits to protected areas as a diversion from beach-based activities (Weaver, 1998). Soft ecotourism experiences are characterized by a high level of service and convenience, often booked and facilitated through traditional tourism industry intermediaries such as travel agencies and tour operators. In essence, soft ecotourism is more anthropocentric or people-oriented, while hard ecotourism is more biocentric or nature-centered (Weaver, 2001).

2.2. Ecotourism Development Concept

Ecotourism management operates under a widely accepted paradigm that emphasizes three core aspects: local communities, biodiversity, and tourism activities (Fennell & Weaver, 2005; Wearing & Neil, 2009). Tourism activities can enhance the economic well-being of local communities, promote cultural exchange, and support environmental sustainability (Chili & Xulu, 2015; Muhanna, 2006). This implies that ecotourism serves as an educational arena about the environment, biodiversity, and intercultural interactions (Sorensen & Grindsted,

2021; Wood, 2002).

Ecotourism management policies encompass a range of regulations, including zoning, access control, managing the number of visitors or groups, influencing visitor behavior, addressing land use changes, conducting market research, marketing ecotourism, performing evaluations, and ensuring sustainable expansion using available resources (Lin et al., 2020).

According to Tseng et al. (2019), several factors are crucial in the development of sustainable ecotourism, including: (1) the value of attractions; (2) facility management; (3) environmental sustainability concerns; (4) ecotourism activities; and (5) community participation. The value of attractions is determined by the unique physical environments that attract visitors looking for a relaxing and memorable experience (Reitsamer et al., 2016). This includes locations that draw people due to their unique resources of interest to tourists (Beall et al., 2021; Reitsamer et al., 2016). Scenic landscapes and other appealing destination resources are essential prerequisites for ecotourism services (Tseng et al., 2019). Facility management involves all facilities and infrastructure used to meet visitors' needs during their stay (Tseng et al., 2019; Cheung & Jim, 2013). Environmental sustainability is critical for the competitiveness of tourism destinations (Zhu et al., 2021). Therefore, investing in environmental improvements can sustain the tourism industry (Sørensen & Grindsted, 2021; Tseng et al., 2019).

Ecotourism activities are closely linked to natural resources and are used to preserve nature and culture, promote conservation, raise environmental awareness, and benefit local communities (Cobbina, 2015). Community participation occurs when nature or culture provides direct or indirect benefits to the community (Strickland-Munro & Moore, 2013; Tosun, 2006). Managing and preserving nature or culture should benefit the community, demonstrating the reciprocal relationship between tourist attractions, ecotourism management, and participation benefits (Tseng et al., 2019).

Expanding upon these principles and methods to improve the alignment between visitor expectations and the attributes of ecotourism destinations. Consequently, this study aims to identify and categorize visitor segments based on psychographic characteristics and to investigate the correlation between estimated and actual preferences for various ecotourism visitor segments. To accurately predict this correlation for both soft and hard ecotourism groups, the following hypotheses were proposed:

H₁: There is a positive and significant correlation between estimates and actual preferences for soft groups.

H₂: There is a positive and significant correlation between estimates and actual preferences for hard groups.

2.3. Research Method

The study employed a quantitative approach to measure a specific number of units that are provided by the SPSS program. A set of questionnaires was divided into three sections to collect data. The details of the socio-demographic respondent profile were identified in the first section. The second section was to classify visitors into one of two groups based on identified psychographic characteristics, and the third section was to determine the utility and importance of attributes for ecotourism destinations.

In this study, the sample comprised visitors to four ecotourism areas in North Sumatera Province, Indonesia. Using convenience sampling, the target sample size was 200 respondents across all locations. The study achieved a 60% response rate, with 120 visitors participating. Participants were required to be at least 18 years old, visit one of the four ecotourism sites, and complete the survey in its entirety. The selection of these four locations was based on two criteria: the presence of an ecotourism site and the local government's commitment to promoting ecotourism.

Data analysis in this study utilized a two-step quantitative approach. The first step involved cluster analysis, which categorizes items or objects into relatively homogeneous groups. Each group contains objects that are similar to each other but different from those in other groups. The results of clustering depend heavily on the method used to select the cluster center, making them reliant on data observations, such as psychographic data. The psychographic-based types of ecotourism and the measuring indicators align with the previous work by Weaver and Lawton (2001). This study adopted a semantic differential scale ranging from one to nine points.

The second step in this quantitative approach was conjoint analysis. The primary goal of conjoint analysis is to identify which attributes are most preferred by the majority of participants. This method assigns a value to each attribute level, specifically the utility value associated with the stimulus, aiming to match as closely as possible with the participants' assessment of input. The importance of attribute values is measured across various factors, including attractions, amenities, accessibility, and ancillary services.

In this study, the operational definition of "Ancillary" refers to tourism-supporting elements such as management agencies, tourist information, and tour operators. "Attractions" encompass all factors that draw visitors to a destination, including a range of natural, cultural, and man-made attractions. "Amenities" refer to the comforts and facilities available at a destination, such as accommodation. "Accessibility" pertains to the infrastructure that connects visitors to different locations.

3. RESULTS

Table 1: Socio-demographic profile.

Socio-demographic	Frequency	Percentage
<i>Gender</i>		
Female	56	46.7
Male	64	53.3
<i>Age</i>		
18 – 23 years	29	24.2
24 – 29 years	31	25.8
30 – 35 years	27	22.5
36 – 41 years	18	15.0
Above 41 years	15	12.5
<i>Regional of Origin</i>		
Inside Province	103	85.8
Other Province	17	14.2
<i>Education</i>		
High school	17	14.2
Diploma	26	21.7
Bachelor's Degree	63	52.5
Master's Degree or PhD	14	11.7
<i>Annual Income Average</i>		
Below IDR 60 million	63	52.5
IDR 60.1 million – IDR 120 million	38	31.7
IDR 120.1 million – IDR 180 million	13	10.8
Above IDR 180 million	6	5.0

Table 1 presents the socio-demographic profile derived from responses collected from 120 participants, shedding light on the characteristics of ecotourism visitors across four selected destinations in Indonesia. Among the respondents, males constituted the majority, comprising approximately 53% of the total sample, indicating a slight gender imbalance within the surveyed population.

Regarding age distribution, the largest demographic group consisted of young adults, with individuals aged between 24 and 29 years representing the highest proportion at 25.8%. This suggests that the ecotourism sites hold particular appeal for younger demographics, possibly reflecting the preferences of adventurous and nature-oriented travelers seeking immersive experiences.

Geographically, the survey demonstrated significant representation from North Sumatra, with 85.8% of respondents originating from this region. This highlights a strong local interest in ecotourism activities within the area and emphasizes the importance of tailoring ecotourism development initiatives to meet the preferences and needs of indigenous communities.

In terms of education, more than half of the respondents held a bachelor's degree, indicating a relatively high level of education among ecotourism visitors. This demographic characteristic may influence the types of activities and experiences sought by visitors, with a potential preference for educational or environmentally conscious tours and initiatives.

Regarding income distribution, the survey revealed that a majority of respondents reported an average annual income below IDR 60 million, indicating a predominantly middle to lower-income demographic. This underscores the significance of offering affordable and accessible ecotourism experiences to accommodate the financial constraints of potential visitors.

Table 2: Cluster and descriptive statistics results.

No	Psychographic measurement indicators	Cluster		Mean	Std. Dev
		Soft	Hard		
1	I am willing to offer extra financial support for ecotourism sites.	6.22	6.92	6.71	2.03
2	Ecotourism trips are usually just one aspect of my broader travel experiences.	6.58	5.53	6.27	2.22
3	I exclusively choose eco-friendly accommodations and tours.	5.47	7.07	6.59	2.05
4	I would extend my journey for a chance to visit a unique site.	5.30	5.36	5.32	2.27
5	Given the choice, I prefer traveling in larger groups.	7.06	5.14	6.48	2.19
6	I actively participate in volunteer activities during my ecotourism trips.	5.31	6.30	6.00	2.33
7	Comfortable lodging and quality services are my priorities.	7.27	4.11	6.32	2.28
8	Ecotourism spots should meet my needs with adequate infrastructure.	7.04	4.69	6.33	2.23
9	Connecting with like-minded individuals enriches my ecotourism experiences.	5.94	6.71	6.48	2.18
10	I prefer ecotourism destinations with guided natural attractions.	7.08	4.28	6.24	2.27
11	I would rather rely on travel agencies for arrangements.	6.12	3.75	5.41	2.43

Table 2 provides an analysis of psychographic measurement indicators for ecotourism, categorized into two clusters: Soft and Hard. These clusters represent different respondent groups with varying attitudes and behaviors towards ecotourism. Both clusters show a strong willingness to offer extra financial support for ecotourism sites, with the Hard cluster scoring slightly higher (6.92) compared to the Soft cluster (6.22). The overall mean is 6.71 with a standard deviation of 2.03, indicating a general propensity to support ecotourism financially.

Respondents in the Soft cluster are more inclined to view ecotourism trips as part of their broader travel experiences, with a mean score of 6.58, compared to 5.53 in the Hard cluster. The overall mean is 6.27 with a standard deviation of 2.22, suggesting moderate agreement with this perspective. Preference for eco-friendly accommodations and tours is higher in the Hard cluster (7.07) compared to the Soft cluster (5.47). The overall mean is 6.59 with a standard deviation of 2.05, indicating a strong preference for environmentally sustainable options, particularly among the Hard cluster. Both clusters exhibit a moderate willingness to extend their journeys for unique sites, with mean scores of 5.30 (Soft) and 5.36 (Hard). The overall mean is 5.32 with a standard deviation of 2.27, suggesting moderate willingness with considerable variability. The Soft cluster demonstrates a stronger preference for traveling in larger groups (7.06) compared to the Hard cluster (5.14). The overall mean is 6.48 with a standard deviation of 2.19, indicating a general preference for larger groups, especially among the Soft cluster.

Participation in volunteer activities during ecotourism trips is more prevalent in the Hard cluster (6.30) than the Soft cluster (5.31). The overall mean is 6.00 with a standard deviation of 2.33, indicating moderate engagement in volunteer work, with the Hard cluster showing more involvement. Comfort is highly prioritized by the Soft cluster (7.27) compared to the Hard cluster (4.11). The overall mean is 6.32 with a standard deviation of 2.28, highlighting a significant emphasis on comfort among the Soft cluster.

The Soft cluster emphasizes the need for adequate infrastructure in ecotourism spots (7.04) more than the Hard cluster (4.69). The overall mean is 6.33 with a standard deviation of 2.23, indicating the importance of infrastructure, particularly for the Soft cluster. Connecting with like-minded individuals is slightly more valued by the Hard cluster (6.71) compared to the Soft cluster (5.94). The overall mean is 6.48 with a standard deviation of 2.18, indicating that social connections are moderately important in ecotourism experiences. Preference for guided natural attractions is stronger in the Soft cluster (7.08) compared to the Hard cluster (4.28). The overall mean is 6.24 with a standard deviation of 2.27, reflecting a general preference for guided experiences, especially among the Soft cluster. Reliance on travel agencies is more preferred by the Soft cluster (6.12) compared to the Hard cluster (3.75). The overall mean is 5.41 with a standard deviation of 2.43, indicating moderate reliance on travel agencies, particularly among the Soft cluster.

The data reveal distinct preferences between the Soft and Hard clusters. The Soft cluster tends to prioritize comfort, infrastructure, and guided experiences, while the Hard cluster is more focused on environmental sustainability and active participation in volunteer activities. The variability in responses, as indicated by the standard deviations, suggests diverse attitudes and behaviors within each cluster.

Table 3: Anova test.

No	Observed psychographic characteristics	Cluster		F	p-value
		Mean	d.f		
1	Zscore-I am willing to offer extra financial support for ecotourism sites.	15.159	3	23.917	.000
2	Zscore-Ecotourism trips are usually just one aspect of my broader travel experiences.	17.847	3	31.627	.000
3	Zscore-I exclusively choose eco-friendly accommodations and tours.	7.001	3	8.287	.000
4	Zscore-I would extend my journey for a chance to visit a unique site.	8.453	3	10.471	.000
5	Zscore-Given the choice, I prefer traveling in larger groups.	18.816	3	34.892	.000
6	Zscore-I actively participate in volunteer activities during my ecotourism trips.	3.488	3	3.728	.013
7	Zscore-Comfortable lodging and quality services are my priorities.	14.775	3	22.953	.000
8	Zscore-Ecotourism spots should meet my needs with adequate infrastructure.	10.119	3	13.241	.000
9	Zscore-Connecting with like-minded individuals enriches my ecotourism experiences.	5.565	3	6.310	.001
10	Zscore-I prefer ecotourism destinations with guided natural attractions.	13.940	3	20.951	.000
11	Zscore-I would rather rely on travel agencies for arrangements.	9.533	3	12.232	.000

Note (s): ($p < 0.10$)*; ($p < 0.05$)**; ($p < 0.01$ ***)

The ANOVA test results in Table 3 reveal significant variations in observed psychographic characteristics across different clusters within the ecotourism context. Each psychographic characteristic is evaluated through its F-count and associated p-value, indicating the degree of variance and statistical significance among the clusters. The most significant variance is observed in instrument number 5, which measures the preference for traveling in larger groups, with the highest F-count of 34.892 and a p-value of 0.000. This suggests a strong difference in group travel preferences among the clusters.

Following this, instrument number 2, which considers ecotourism trips as part of broader travel experiences, has an F-count of 31.627 and a p-value of 0.000, indicating significant variance in how respondents integrate ecotourism within their overall travel plans. Instrument number 1, which measures the willingness to offer extra financial support for ecotourism sites, also shows substantial variance with an F-count of 23.917 and a p-value of 0.000, reflecting differing levels of financial support willingness across clusters. Instrument 7, focusing on the priority of comfortable lodging and quality services, follows with an F-count of 22.953 and a p-value of 0.000, indicating significant differences in comfort preferences among the clusters. Instruments 8 and 11 also exhibit notable variances. Instrument 8, concerning the need for adequate infrastructure in ecotourism spots, has an F-

count of 13.241 and a p-value of 0.000, while instrument 11, related to reliance on travel agencies, has an F-count of 12.232 and a p-value of 0.000.

Further significant results are found in instrument 4 (F-count = 10.471, p-value = 0.000), which measures willingness to extend a journey for unique sites, and instrument 3 (F-count = 8.287, p-value = 0.000), which examines the preference for eco-friendly accommodations and tours. Instruments 6 and 9 also yield significant outcomes, although with relatively lower F-counts. Instrument 6, measuring active participation in volunteer activities during ecotourism trips, has an F-count of 3.728 and a p-value of 0.013. Instrument 9, focusing on connecting with like-minded individuals, has an F-count of 6.310 and a p-value of 0.001.

In summary, the results of the ANOVA test reveal significant differences across clusters for all the psychographic characteristics analyzed. This underscores the varied psychographic profiles and preferences among ecotourism visitors, offering valuable insights to enhance visitor experiences and advance sustainable ecotourism practices.

Table 4: The utility and importance of attributes in the aggregate for soft and hard eco-tourisms

Attributes	Attribute level	Relative importance weighting (%)		Utilities	
		Soft group	Hard group	Soft group	Hard group
Ancillary	Tourists information	8.333%	26.316%	0.417	
	Tour operators				-0.417
Attractions	Natural diversity.	33.333%	42.105%	0.444	
	Cultural diversity				0.444
Amenities	Human-made				-0.889
	Accommodation	41.667%	10.526%	0.111	
Accessibilities	Comfortable				-0.111
	Private Transportation	16.667%	21.053%	-0.667	
	Public Transportation				0.333
	Rental Transportation.				0.333

Table 4 outlines the utility values and relative importance weighting of attributes obtained from conjoint analysis, shedding light on the preferences and priorities of both soft and hard ecotourism groups. These metrics are crucial for understanding the differences in visitor preferences within the ecotourism realm.

For the soft ecotourism cohort, there's a noticeable inclination towards ancillary features, notably tourist information, registering a utility value of 0.083. Soft ecotourists lean towards both natural and man-made attractions, each with utility values of 0.222, while cultural attractions receive less favorability, evidenced by a utility value of -0.444. Accommodation and comfort emerge as focal points for this group, with a utility value of 0.417, indicating a preference for top-notch lodging experiences. Additionally, soft ecotourists favor private transportation over public and rental options, with a positive utility value of 0.222.

Conversely, the hard ecotourism segment prioritizes tourist information over tour operators, with a utility value of 0.417 for the former. In terms of attractions, hard ecotourists value both natural and cultural diversity equally, each with a utility value of 0.440. Unlike the soft group, hard ecotourists exhibit a preference for less luxurious accommodation, indicated by a utility value of 0.111. Moreover, they lean towards public or rental transportation over private options, with a positive utility value of 0.333.

Regarding relative importance weighting, soft ecotourists prioritize amenities like accommodation and comfort at 41.667%. Tourist attractions come next at 33.333%, followed by transportation mode accessibility at 16.667%, and ancillary attributes at 8.333%. Conversely, hard ecotourists assign the highest importance weighting to tourist attractions at 42.105%, trailed by ancillary attributes at 26.316%. Accessibility ranks third at 21.053%, while amenities hold the least weighting at 10.526%.

In essence, these findings underscore the distinct preferences of soft and hard ecotourism cohorts, providing insights for destination management and marketing to enhance visitor experiences and foster sustainable ecotourism practices

Table 5:Correlations in aggregate.

	Ecotourist type	Value	p-value
Pearson's R	Soft segment	0.778	0.007
	Hard segment	0.825	0.003
Kendall's tau	Soft segment	0.775	0.005
	Hard segment	0.753	0.004

Correlations between observed and estimated preferences

Table 5 presents correlations in aggregate for ecotourist types, including Pearson's R and Kendall's tau coefficients, along with their corresponding p-values. For the soft ecotourism segment, Pearson's R coefficient is 0.778 with a p-value of 0.007, and Kendall's tau coefficient is 0.775 with a p-value of 0.005. These results indicate a significant correlation between estimated and actual preferences among visitors to these four ecotourism destinations, supporting H1. Similarly, for the hard ecotourism segment, Pearson's R coefficient is 0.825 with a p-value of 0.003, and Kendall's tau coefficient is 0.753 with a p-value of 0.004. These findings demonstrate a

statistically significant correlation between estimated and actual preferences for visitors within this segment across the four ecotourism destinations, supporting H2.

Overall, the study reveals strong correlations (both Pearson's R and Kendall's tau) between conjoint measures and visitor preferences for both soft and hard ecotourism groups. These results confirm the accuracy of predicting visitor preferences across different ecotourism destinations, encompassing both soft and hard ecotourism visitor profiles.

4. DISCUSSION

In this section, the authors discuss the findings of the cluster analysis, highlighting significant differences between soft and hard ecotourists across the four ecotourism destinations in terms of psychographic characteristics. Soft ecotourism visitors typically exhibit a lower commitment to environmental issues and sustainability, requiring assistance in accessing information about the ecotourism environment. They often travel in larger groups for shorter durations, prioritize comfort, and rely heavily on travel agencies and high-end tourist services.

Conversely, hard ecotourism visitors display a higher commitment to environmental issues and sustainability, planning their trips independently in small groups for longer durations. They actively engage in tourist activities, seek physical challenges for personal experiences, and show enthusiasm for nature and cultural interactions, prioritizing authenticity over comfort.

Furthermore, the study examines the predictive accuracy of estimated visitor preferences, confirming that the preferences of both soft and hard ecotourism visitors align with their actual preferences across the four ecotourism destinations.

Regarding visitors' actual preferences for ecotourist destination attributes, soft ecotourism visitors prioritize amenities such as comfortable accommodation and prefer natural and man-made attractions. They also value the availability of tourist information and tour operators. On the other hand, hard ecotourism visitors prioritize tourist attractions, particularly those offering cultural and natural diversity. They are more inclined towards using public or rented transportation and are willing to sacrifice comfort for authentic experiences. Overall, the results suggest that estimated visitor preferences, categorized as "soft" or "hard" ecotourism, correspond well with actual preferences across different destinations, validating the predictive accuracy of the study.

This study enriches the theoretical understanding of ecotourism by demonstrating how psychographic segmentation can identify specific visitor preferences and behaviors. The results emphasize the significance of recognizing both soft and hard ecotourist segments in ecotourism research, highlighting their distinct priorities and needs. By integrating psychographic characteristics into the analysis, this study offers a deeper comprehension of ecotourist behavior, thus informing the development of more targeted ecotourism strategies.

From a managerial viewpoint, this study highlights the importance of ecotourism providers tailoring their offerings to meet the specific preferences of different ecotourist segments. For soft ecotourism visitors, providers should prioritize providing comfortable accommodations, comprehensive tour operator services, and a diverse range of natural and man-made attractions. It's also crucial to ensure easy access to information and travel assistance for this group.

Conversely, for hard ecotourism visitors, providers should emphasize promoting environmental and cultural preservation, furnishing detailed destination information, and delivering authentic experiences. Accommodations for this segment can be more basic, as their focus is on authenticity and sustainability rather than comfort. Additionally, offering options for public transportation or car rentals may appeal to this segment. Tailored communication for each segment, covering amenities, accessibility, ancillary services, and attraction attributes, is essential for attracting and satisfying ecotourism visitors. By customizing service offerings to these distinct segments, ecotourism providers can enhance visitor satisfaction and build loyalty.

5. CONCLUSION

This study concludes that the identified clusters exhibit distinct characteristics in ecotourism preferences. Soft ecotourism visitors prioritize comfortable accommodations, while hard ecotourism visitors prioritize environmental and cultural preservation. Therefore, aligning ecotourism destinations with visitor segments' psychographic characteristics is crucial. Soft ecotourism visitors value tour operators, enjoy both natural and man-made attractions, and prioritize comfortable accommodations, even when using private vehicles.

In contrast, hard ecotourism visitors prioritize tourist destination information, prefer natural and culturally significant attractions, and are open to using public transportation or renting a car. They are also willing to accept less comfortable accommodations if needed. Hence, a well-managed ecotourism sector tailored to each destination's unique features is essential. Ecotourism providers should effectively communicate the importance of amenities, accessibility, ancillary services, and attraction attributes to potential visitors seeking ecotourism experiences.

One limitation of this study is its reliance on convenience sampling, which might not guarantee a fully representative sample of all ecotourists. The relatively small sample size and the focus on only four ecotourism destinations in North Sumatera Province, Indonesia, could limit the generalizability of the findings to other regions and contexts. Additionally, relying on self-reported data through questionnaires could introduce bias, as respondents may not consistently portray their genuine preferences and behaviors.

Future studies should address these limitations by using larger, more representative samples and exploring

ecotourism preferences across a wider range of destinations and cultural contexts. Longitudinal research could provide insights into the evolution of ecotourism preferences and behaviors over time. Additionally, integrating qualitative approaches like in-depth interviews or focus groups could enrich the understanding of the underlying motivations and attitudes shaping ecotourist behavior.

Furthermore, future research could examine the influence of external factors such as environmental policies, economic conditions, and technological advancements on ecotourism preferences and behaviors. By broadening the scope and depth of ecotourism research, both academics and practitioners can develop more comprehensive and impactful strategies to promote sustainable and fulfilling ecotourism experiences.

Acknowledgement:

The study was supported by Universitas Sumatera Utara under the Talenta Research Grant.

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APPENDICES

Visitor socio-demographic profile (Section-1)

1. Gender
 - Female
 - Male
2. Age Category:
 - 18 – 23 years
 - 24 – 29 years
 - 30 – 35 years
 - 36 – 41 years
 - Above 41 years
3. Regional of Origin
 - North Sumatera
 - Other Province
4. Education
 - High school
 - Diploma
 - Bachelor's Degree
 - Master's Degree or PhD
5. Annual Income Average
 - Below IDR 60 million
 - IDR 60.1 million – IDR 120 million
 - IDR 120.1 million – IDR 180 million
 - Above IDR 180 million

Visitor Questionnaire Form (Section-2)

Statement	1	2	3	4	5	6	7	8	9
I am willing to offer extra financial support for ecotourism sites.									
Ecotourism trips are usually just one aspect of my broader travel experiences.									
I exclusively choose eco-friendly accommodations and tours.									
I would extend my journey for a chance to visit a unique site.									
Given the choice, I prefer traveling in larger groups.									
I actively participate in volunteer activities during my ecotourism trips.									
Comfortable lodging and quality services are my priorities.									
Ecotourism spots should meet my needs with adequate infrastructure.									
Connecting with like-minded individuals enriches my ecotourism experiences.									
I prefer ecotourism destinations with guided natural attractions.									
I would rather rely on travel agencies for arrangements.									

Visitor Questionnaire Form (Section-3)

Attributes	Classifications		
	1	2	3
Ancillary	<input type="checkbox"/> Tourist informations	<input type="checkbox"/> Air operators	
Attractions	<input type="checkbox"/> Natural diversity.	<input type="checkbox"/> Cultural diversity	<input type="checkbox"/> Man-made
Amenities	<input type="checkbox"/> Accommodation	<input type="checkbox"/> Uncomfortable	
Accessibilities	<input type="checkbox"/> Private Transportation	<input type="checkbox"/> Public Transportation	<input type="checkbox"/> Rental Transportation