



## Perception of Visitors on Ecotourism Environmental impact : A Study of Munnar, Kerala, India

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### ABSTRACT

Ecotourism offers a sustainable solution in developing tourism in India. However, with growing interest in ecotourism, tourism managers are facing the issue of managing tourists demands while at the same time mitigating the impact on the destination's environment. Visitor management is considered vital for the sustainable development of a destination where visitor effect and perception studies are critical for future management regimes. The research aim was to investigate the perception of tourists visiting Munnar. To gather tourist information at the destination, the current study used a descriptive research tool, a self-administered questionnaire. The study of the demographic variables of tourists was carried out, and an evaluation was made of the perception of visitors about the effect of tourism activities on the environment of the destination. The evaluation was used to research the impact on the attitude of the visitor concerning Munnar as a tourist destination of age, education, and income status. Research results suggest that there are major variations in the attitude of tourists in terms of age, education, and income. The result indicates that there is a positive connection between the satisfaction of tourists and factors related to the destination that influence the perception of tourists.

**Keywords:** Sustainable ecotourism, Visitor perception, Environmental sustainability, India, Munnar

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### INTRODUCTION

Tourism is one of the world's most fast-growing sectors. The tourism sector is increasingly aware of the industry's impacts leading to the implementation of alternative types of tourism and other environmentally friendly travel practices (Dahal *et al.*, 2020). The true essence of ecotourism has positive benefits, but it also has some negative impacts on the natural environment and the fragile ecosystem when they are intensively used as tourism tools (Ardiantiono *et al.*, 2018). However, the exact form of the environmental effect depends on the destination's location and particular landscape (Chandran & Bhattacharya, 2019). Some ecological concerns include overconsumption of resources, deforestation, emissions, wildlife disruption, etc. (Haarhoff, 2018). Consequently, in the planning and implementation of tourism, the environmental protection aspect and routine monitoring system needs to be included.

The visibility of environmental issues has led to increased research into the environmental problems caused by tourism and how visitors view the impacts they produce (Shashni & Sundriyal, 2017). Tourists' behavior plays a vital role in exasperating the effect on the environment. Eco tourists are concerned about protecting and conserving the environment to ensure the sustainability of natural resources (Poudel & Nyaupane, 2017). Depending on their demographics, visitor perception of a tourist attraction can vary greatly (Junus *et al.*,

2020). Objective knowledge on factors influencing visitor experiences, such as behaviors, desires, and expectations of tourists, is a significant precondition for informed management and providing quality recreational opportunities (Souza *et al.*, 2021). Considering the tourist's socio-demographic and visitation characteristics, motivation and satisfaction are essential to facilitate the implementation of tourism management plans (Lyngdoh *et al.*, 2017; Lee & Abrahams, 2018). Tourists' socio-demographic features are measures of their motivation (Adam *et al.*, 2017) and represent the activities that tourists enjoy, the places they want to visit, and the potential effects on tourists of these activities and locations. (Lyngdoh *et al.*, 2017). Consequently, knowledge on visitor experience can play an essential role in selecting tools and measures of social impact and in the setting of quality criteria for these indicators (Dangi & Gribb, 2018). Against this backdrop, this research objective was to perceive the understanding of tourists about the effect of ecotourism on the area's environmental sustainability.

### Literature review

#### Tourists perception

Perception is "the reception and processing of information from the environment" (Proshansky *et al.*, 1976). Haarhoff (2018) explain that people perceive the environment in which they find themselves, based on their needs, and prefer such environments to operate more efficiently. Visitor perceptions depend on various types of variables, such as the history of tourists, the types of activities in which visitors engage, the recreational goals of different visitor groups, environmental

literacy, and education (Pham & Khanh, 2020). Education, economic status, social class, and gender are the main factors affecting visitors' perceptions (Junus *et al.*, 2020). In addition, several past studies have shown that the understanding of environmental impacts varies between managers and visitor groups in various activities (Farrell & Marion, 2001). Previous studies of the environmental effects views of tourists have shown that visitors are frequently not very conscious of their induced impacts, but rather consider the direct impact of other visitors, including waste, air pollution, noise, and vandalism (Manning, 1999).

#### Environmental impact

Tourism appears to concentrate more on nature-based activities in the least developed nations. The key attraction of the ecotourism industry is an attractive and preserved environment; thus, there is the need for the conservation of natural resources. In nature-based tourism areas, several policies have been studied and introduced, such as carrying capacity (Cuong *et al.*, 2018), visitor impact management (Dangi & Gribb, 2018), and the limits of acceptable changes (Komsary *et al.*, 2018). Various studies highlight the importance of measuring the magnitude of the environmental impact that tourists are aware of and understand when traveling (Dahal *et al.*, 2020). Initial studies have explored visitor behaviors, desires, and expectations, in addition to research into outdoor recreation habits and satisfaction with outdoor recreation experiences. Since recreational activities, recognized as social behavior, [which] naturally suggest that data on visitors' attitudes and preferences towards facilities and services would be desirable for better destination management (Junus *et al.*, 2020). Early research about visitor perceptions of environmental impacts was generally limited, as concluded by Lucas (1979).

There is a small but growing amount of research on tourists' attitudes about environmental impacts; still, researchers face challenges due to a lack of solid research on this topic (Dahal *et al.*, 2020; KC *et al.*, 2020).

## MATERIALS AND METHODS

### Study site

Munnar is one of the most prominent tourist attractions and beautiful hill stations in India's South Western Ghats, spread over an area of 557 sq. km. This study site is located in Kerala State's Devikulam Taluk, Idukki district. The geographical location of the study area is 10°04'45"N- 10°05'58"N latitude and 77°02'40"E-77°03'45" E longitude. Munnar derived its name due to the confluence of three rivers - Mudrapuzha, Nallathanni, and Kundala. In the colonial period, it was the British rulers' favorite summer destination. A variety of green carpeted tea plantations, attractive waterfalls, green valleys, mountain beauty, and wildlife sanctuaries with exotic flora and fauna are the main attraction of Munnar. Munnar is located 1700 m from the average sea level.

### Research design

To examine tourists' perception of the environmental impact of tourism, data was collected in the form of a questionnaire among tourists visiting Munnar between May 2017 and May 2019. Respondents were recruited using a system of random interception. A total of 382 responses were obtained from the 424 questionnaires. A common technique for studying tourist behavior is questionnaire-based surveys (Kempiak *et al.*, 2017; Poudel & Nyaupane, 2017), and the same approach was adopted in the study. A five-point Likert Scale ("Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree") was used as the measuring instrument to determine to what degree the respondents perceived the environmental impacts through some statements. The main features studied were their general characteristics (age, sex, educational level, etc.), their environmental awareness, and their expectations from a visit to Munnar. To demonstrate the findings, quantitative data from surveys were analyzed using the Microsoft Excel.

Later exploratory data analysis and descriptive statistics were applied. Descriptive statistics like frequencies, percentages, and averages were used to analyze the demographic variables of the respondents. Moreover, the mean values and standard deviations were used to analyze the visitor' perception of tourism impacts.

## RESULTS AND DISCUSSION

### Respondents' profile and visit characteristics

**Table 1.** Socio-demographic Profile and Visitation characteristics of visitors (N=382)

Demographic Characteristics			Visitation Characteristics		
Characteristics	Frequency	Percentage	Characteristics	Frequency	Percentage
<b>Gender</b>			<b>Visit Days</b>		
Female	104	27.23	1-2	254	66.49
Male	278	72.77	3-4	114	29.84
<b>Age</b>			Up to one week	14	3.66
15-30	210	54.97	<b>Frequency of Visit</b>		
31-45	131	34.29	Once	232	60.73
46-60	40	10.47	Twice	67	17.54
>60	1	0.26	Thrice	34	8.9
<b>Education</b>			More number of times	49	12.83
Diploma	24	6.28	<b>Mode of Transport</b>		
Post-Graduation	116	30.37	Bus	71	18.59

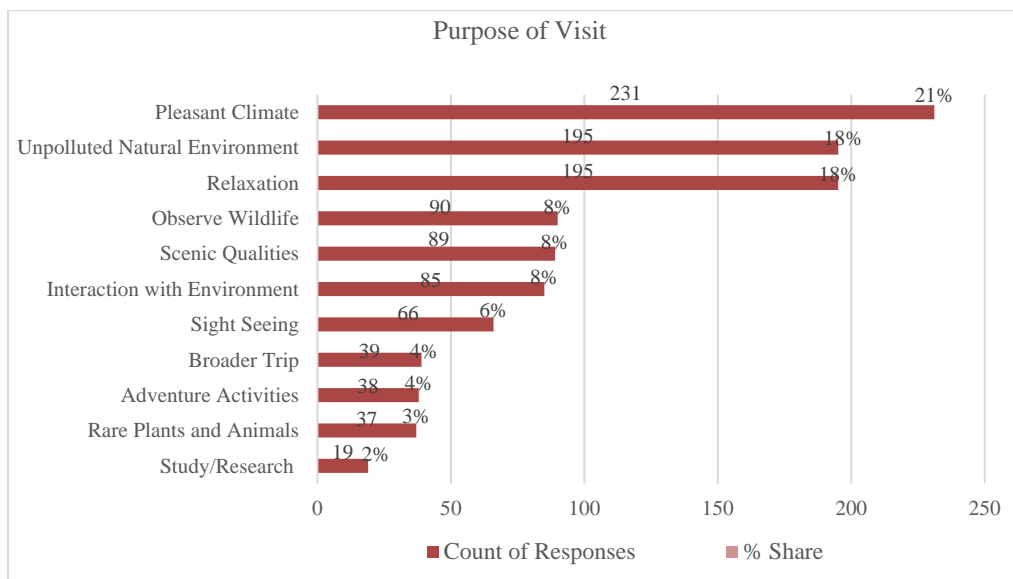
Professional degree	70	18.32	Personal Car	132	34.55
School Level	57	14.92	Rental Vehicle	148	38.74
Under Graduation	115	30.1	Taxi	26	6.81
<b>Occupation</b>			Other	5	1.31
Business	74	19.37	<b>Visit Accompany</b>		
Government Job	50	13.09	Alone	3	0.79
Private Employee	88	23.04	Business Colleagues	1	0.26
Professional	48	12.57	Family	271	70.94
Unemployed	122	31.94	Friends	75	19.63
<b>Monthly Income (Rs)</b>			Tour Group	31	8.12
No Income	107	28.01	Other	1	0.26
<10,000	25	6.54	<b>Estimated Tour Expenditure (Rs)</b>		
10,000-25,000	84	21.99	<5,000	70	18.32
25,001-50,000	75	19.63	5,001-10,000	87	22.77
50,001-1,00,000	51	13.35	10,001-15,000	95	24.87
>1,00,000	40	10.47	>15,000	130	34.03

The survey sample included 382 respondents, most of whom were male, i.e., 72.77%, and 27.23% were female, as given in **Table 1**. The majority of respondents were in the 15-30 age group, i.e., 54.97%, and the least was in the older age group, i.e., over 60. Most visitors were well educated, i.e., post-graduate (30.37%) or under-graduate (30.10 %). High respondents from the younger age group show excitement for high altitude drives with many adventure activities available in the destination. At the same time, older people were less due to problems associated with high altitude location and low temperatures as they might have age-related discomfort while driving in mountainous areas.

A stay of 1-2 days is most common (66.49%), followed by 3-4 days (29.84%) and then up to one week (3.66%). The majority of the visitors were visiting Munnar for the first time, i.e., 60.73% as shown in **Table 1**. The majority of them visited Munnar on a self-organized trip with family (70.94%). About 38.74% and 34.55% of the visitors stated using the rental

vehicle and personal transport to reach Munnar. On the other hand, only 18.59% used public transportation to visit Munnar. The visitors preferred private vehicle as compared to public transport as it is reasonably pleasant, takes less time, and the journey is more about the visitor's own choice. Most visitors have an expense of over Rs 15,000/- as Munnar is a very favorite destination in the south because of its beauty and perfect location, which costs high accommodation costs, in and around travel and food costs. Most visitors preferred to stay in hotels (56.54%) because there was plenty, hotel availability in Munnar caterer, and hotels ranging from low-cost hotels to 5-star properties. Visitors did not prefer to hire a guide (58.90%), as it was observed that the guide services offered at Munnar did not meet visitors' requirements, primarily concerning language.

*Factors that attract tourists to munnar*



**Figure 1.** Visitors Purpose for Visiting Munnar

It was seen that the significant purpose of the visit to Munnar was to enjoy the pleasant climate (21%) followed by enjoying the unpolluted natural environment (18%) and relaxation (18%), as shown in **Figure 1**. Being located in the Western Ghats, an ecologically fragile area and the presence of endemic flora and fauna, people do not come to learn or study or research it (2%). This finding indicates that while the visitor may visit Munnar to be close to nature, natural features, and experience new things, the social factor like spending time and relaxing with family or friends is often the most important motivating factor for people to visit Munnar.

Tourists were asked to rank themselves on an environmentalist scale. The research findings showed that 63% of the tourists were slightly environmentalist, 25% as a strong environmentalist, and 12% as not environmentalist. The majority of tourists indicated that they cared about the environment since many fewer tourists did not consider themselves environmentalists. Research has shown that individuals, who are actively interested in protecting the home environment, pursue holiday activity with less detrimental environmental impacts.

Visitor environmentalist scale on the level of their understanding

Visitor perception regarding concern of tourism impact in munnar

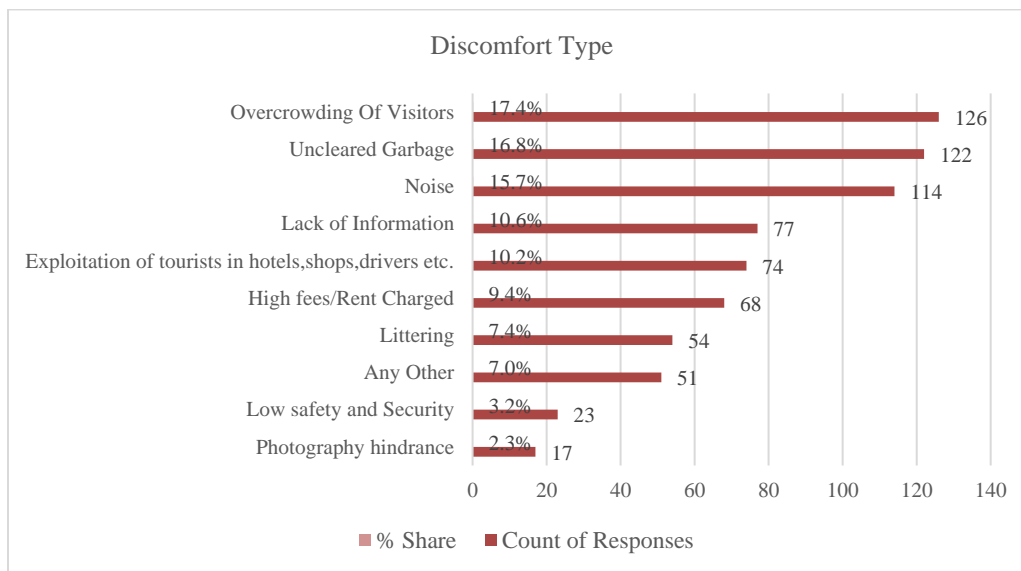


Figure 2. Various Impacts Observed by Visitors when They Visited Munnar

As **Figure 2** shows, the most common tourist impact observed by visitors was visitor overcrowding (17.4%), followed by uncleaned waste (16.8%) and noise (15.7%). The most notable impact on tourism was the low level of security (3.2%) and the barrier to photography (2.3%). Visitors shared concerns about waste and waste management concerns. These findings are consistent with the understanding of the overall condition of the destination's environment, implying that with greater deterioration of the natural environment, tourist overcrowding in Munnar would adversely affect its natural beauty.

selected and grouped into three main categories, as shown in **Table 2**. The first category focuses on visitors' perception of environmental impact and their knowledge of Munnar's ecotourism . Under this, motivation played an essential role in determining perception with an average score higher than 0.76 and discomfort with an average score of 0.21. Thus, the reason to visit the destination was stronger than the discomfort , thus allowing them to revisit the destination. The second category emphasized the knowledge about ecotourism in terms of their understanding and how they are perceive themselves as ecotourists. In this visiting natural areas got highest preference and least preference for certified accommodation. In visit characteristics , the major score was for accommodation used followed by estimated expenditure.

Factors influencing visitors' perception regarding environmental impact issues

To better understand visitors' perceptions of the environmental impact on the destination, 15 parameters were

Table 2. Factors Affecting Visitor's Perception of Environmental Impacts

Major Parameter	Sub parameters	Mean Score	Standard Deviation
Environmental Impact Familiarity and Concern	Satisfaction	0.51	0.20
	Attitude	0.64	0.18
	Motivation	0.76	0.19
	Awareness	0.53	0.20
	Discomfort	0.21	0.13

Ecotourism perception	Environmental Studies in Education	0.34	0.24
	Reading	0.39	0.24
	Visit natural areas and Preference of Certified Accommodation for stay	0.65	0.33
	Preferred accommodation	0.27	0.30
Visitation Characteristics	Visit Days	0.19	0.28
	Frequency of visit	0.25	0.36
	Mode of Transport	0.34	0.23
	Accommodation Used	0.70	0.23
	Visitor Accompany	0.27	0.14
	Purpose of Visit	0.18	0.19
	Estimated Expenses	0.58	0.37

1. Visitor perception of studied environmental parameters according to the level of environmental knowledge

Results show that visitors' perception of all the parameters increased with their level of environmental knowledge. The visitor's familiarity of the environment improves with his/her environmental scale. Similar trends were observed in tour particulars and perceptions of ecotourism. This indicates that tourists with a better knowledge of the environment are planning a more sustainable tour and are placing importance on sustainable practices in progress. Knowledge of their

impact is generally low, but awareness that other visitors may affect the same resource they use is ordinarily high (Cuong *et al.*, 2018).

2. Impact of demographic parameters on the perception of visitors about the environmental impact

Visitors have different views of environmental situations that could be impacted by variables such as age, education, and income (Aryal *et al.*, 2019; Junus *et al.*, 2020).

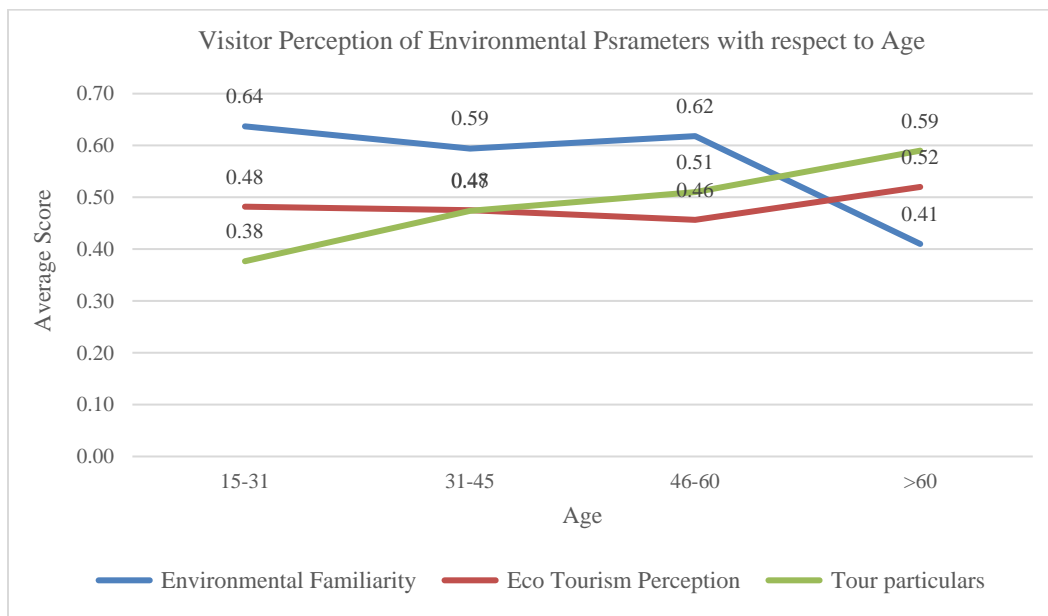


Figure 3. Visitor Perception of Environmental Parameters concerning Age

Figure 3 illustrates visitors' perceptions of environmental factors to age. It indicates that with an increase in age, the environmental familiarity of the destination is decreasing, and this might be due to the visit purpose of the visitors. The elderly simply visit the places to relax and enjoy the beauty of

the destination, while the youngest in general attempt to explore various activities. While the perception of ecotourism and tour particularities has increased with age, indicating that tour plans and visits to natural areas are more favored with age.

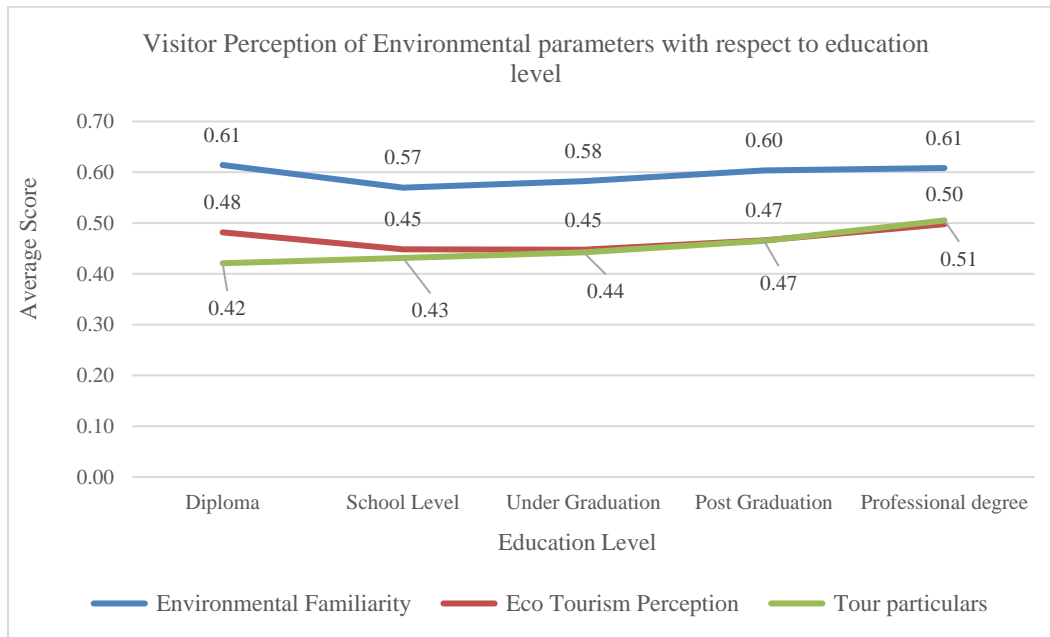


Figure 4. Visitor Perception of Environmental Parameters concerning Education Level

Figure 4 above shows that with a higher level of education, there is a better understanding of the environment, better travel management, and a better perception of the destination when it comes to ecotourism. The level of higher education attached less importance to the need to have facilities in Munnar. In contrast, visitors with a group of secondary education felt that the facilities were very important. The results indirectly suggest that higher-educated visitors better understand the fulfillment of visitors' facilities and the environmental impact the destination can have due to this pressure. However, visitors with lower educational attainment

seem to feel that the convenience factor is very important to them and has a more significant impact on the destination environment. The survey also revealed that the level of education influenced visitors' perceptions of the environmental effects of tourism. Visitors with lower levels of education place great emphasis on the factor of low-cost tickets and facilities offered at the destination. Unlike higher-educated visitors, who place less emphasis on these factors. Higher levels of educational attainment were associated with higher levels of environmental awareness and positive environmental attitudes (Salman *et al.*, 2021).

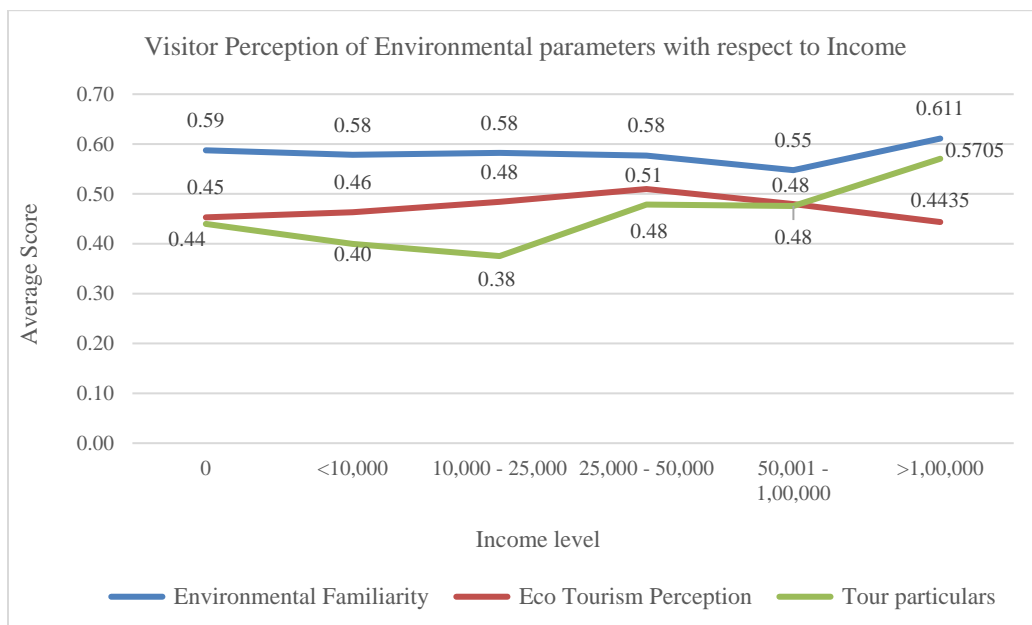


Figure 5. Visitor Perception of Environmental Parameters concerning Income Level

**Figure 5** illustrates visitors' perceptions of the environmental impact on their income levels. The tourists with higher income levels are more aware of the environmental aspects of the destination, but the ecotourism perception of the people decreases with the rise in income. This indicates that more revenue they can have more expenditure for the tour and thus luxury will be the significant target rather than basic facilities. More preference will be given to 5-star properties, more food waste, energy consumption, and resource utilization, creating pressure. Many with higher incomes would like to show their social status by displaying a 'profile' as seen by their consumption and travel, which will help them maintain their social status, power, and privileges.

### CONCLUSION

Most tourists were aware during the survey that travel was undoubtedly harming the environment of the destination. The visitor's socio-economic background will have a profound effect on her/his perception of the state of the environment. Visitors believe that tourism activities, construction, and other infrastructure development activities have a significant environmental impact. The impacts found by visitors at Munnar included waste and litter, overcrowding, noise effects, etc. This shows that visitors are highly aware of tourism's environmental effects and are worried about it. This means that as visitor numbers will increase in the future, visitor impact actions will escalate, too. Education plays an essential role in educating visitors about areas natural environment, its significance and need of conservation for better management. It is therefore essential to provide the visitor with appropriate knowledge and education. There is currently a lack of information and awareness about the Munnar rules and regulations among visitors. Thus, Munnar tourism managers should provide more signs of information to educate visitors in the targeted area about misconduct behavior so that visitors can 'clearly notice' the data apart from the data's educational sense. Tourism managers should focus on protecting and maintaining the ecology and environment of the destination and not compromising the core values of sustainability due to pressure from tourism development.

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**ETHICS STATEMENT:** Taking the American Association of Public Opinion Research (AAPOR) code as a guide, Ethics approval was not sought as all participants provided written informed consent prior to enrollment in the study and

participation was voluntary. In addition, the respondents' anonymity and confidentiality were kept.

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