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ORIGINAL RESEARCH PAPER

The role of pro-environmental behavior in the development of sustainable tourism

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ABSTRACT

BACKGROUND AND OBJECTIVES: Sustainable tourism is tourism development that has a long-term impact on the environment, society, culture, and the economy for the present and the future. The benefits are felt by local people and tourists. The achievement of this research is the implementation of pro-environmental behavior, which is supported by tourist satisfaction and electronic word of mouth toward sustainable tourism as a form of environmental management policy in West Sumatra. This research aims to show three direct effects: first, the effect of satisfaction and electronic word of mouth on the sustainability of tourism; second, the effect of satisfaction on electronic word of mouth; and third, three moderating effects of pro-environmental behavior, namely, moderating the influence of tourist satisfaction on tourism sustainability, moderating the influence of electronic word of mouth on tourism sustainability, and moderating the influence of satisfaction with electronic word of mouth.
METHODS: This study is a quantitative study involving 420 tourists as respondents who visited West Sumatra from January to April 2023. Data analysis used partial least square–structural equation modeling. Structural equation modeling is a field of statistical study that can test a series of relationships that are relatively difficult to measure simultaneously. Partial least square is a component or variant-based structural equation model.
FINDINGS: After analyzing the data, it was determined that of the six hypotheses proposed in this study, five were accepted and one was rejected. The rejected hypothesis states that with a significance level of 0.199 > 0.05, pro-environmental behavior does not moderate the effect of electronic word of mouth on the sustainability of tourism. These findings clarify that the impact of electronic word of mouth on the sustainability of tourism is not mitigated by pro-environmental conduct.
CONCLUSION: When implementing sustainable tourism, not only economic factors are taken into account but also the preservation of nature and culture. Therefore, the stability of tourism in the future can be guaranteed without adversely impacting the environment.

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INTRODUCTION

Currently, sustainable tourism (ST) plays a crucial role in the development of the tourism sector, as shown by various studies (Graci and Vilet, 2020; Weng et al., 2021). More specifically, over the last 2 years, 1,175 article publications on this topic have been found via ScienceDirect, in terms of subject areas such as business, management, and accounting. Some regions in the world have begun taking this concept seriously, for example, Boracay Island in the Philippines. In 2015, 80% of Palau's waters were declared "no exploitation" areas. Even sunscreen is prohibited for use in Palau waters starting in 2020. Besides Palau, Ljubljana (Slovenia) was recognized as one of the world's best cities because it excels in addressing over-tourism. In the interim, the best nature category was won by the Netherlands (Goeree-Overflakke, Schouwen Duiveland, Veere, and Westvoorne), the United States (Lake Tahoe), and Ecuador (Sani Isla). For the best ecotourism category, Guyana, Tmatboey (Cambodia), and Serra Gorda (Mexico) won. In the category of best ST destinations on each continent, Tanzania (Chumbe Island), Ecuador (Galapagos National Park), Nepal (Bardia National Park), and Portugal (Agueda, Oeste-Region, Azores, Cascais, Lagos, Sintra, Torres Vedras, and Alto Minho CIM) became the best for their respective continents. Previous studies confirmed the benefits of ST for the economic and environmental sectors (Graci and Van, 2020; Luo, 2018; Man et al., 2021; Park et al., 2022; Wang, 2022; Weng et al., 2021), making these an important issue that attracted the attention of researchers. The State of Global Islamic Economy (SGIE) report showed that problems in the tourism sector began to manifest in 2020 because of the impact of the COVID-19 pandemic, during which the decline has reached 70% (Elshaer et al., 2021; Part et al., 2022). Nevertheless, in 2021, this downturn will begin to emerge owing to the role of Muslim consumption for halal tourism, which saw an increase of 44 billion United States dollars (USD). Then, in 2022, SGIE also predicted that Muslim consumption for halal tourism will increase again up to 52 billion USD (Baba-Nalikant et al., 2023). Moreover, the SGIE results are strengthened by the Global Muslim Travel Index (GMTI) analysis that in 2022, globally, Muslim tourist visits will continue to increase (Hwang et al., 2023; Irawan et al., 2022). In fact, GMTI has predicted that Muslim tourist visits in 2028 will reach 230 million with a consumption value of 225 billion USD (Sheasby, 2022). In addition, the 2022 GMTI also assessed Indonesia's advantages in the tourism sector, which includes excellence in the service and communication aspects, especially in West Sumatra (WS). Natural conditions and community culture are the keys to ST in WS. It has been proven that an increase in tourist visits to WS reached 5,100 in 2023 when compared to that in the previous year (Azizah, 2023; Scheyvens, 2021). This increase is mainly due to the natural beauty of WS, which is maintained because tourists understand pro-environment behavior (PEB) (Bilynets and Knezevic, 2022; Nowacky and Kowalczyk, 2023; Triši, 2023), which is necessary for achieving environmentally friendly tourism that focuses on environmentally responsible management practices, preserving biodiversity, involving and empowering local communities, and generating sustainable economic benefits for destinations and their residents. Investigations from previous research confirm that PEB can be obtained through motivation, socialization and the provision of infrastructure to reduce the impact of environmental degradation due to tourism (Bilynets and Knezevic, 2022; Park et al., 2022; Preko et al., 2019). Furthermore, other factors that influence ST in this study are tourist satisfaction (TS) and electronic word of mouth (EWOM) (Gerdt et al., 2019; Lee et al., 2020). TS is related to the response felt by tourists after making a tourist visit, which is assessed by their opinion about each destination's quality and performance (Setiawan, 2018; Surya et al., 2018). Then, EWOM is closely related to digital marketing to create word of mouth using photos or videos as a form of electronic marketing (Gerdt et al., 2019; Vema and Yadav, 2021). Although study regarding the relationship between the variables described previously has been researched previously, there is still a gap that can be developed. This study aims to analyze the determinants of ST, which comprise the direct influence of TS and EWOM. Meanwhile, PEB is positioned to moderate TS against ST, TS against EWOM, and EWOM against ST because PEB can strengthen and weaken the relationship between TS, EWOM, and ST. This study was conducted in West Sumatra, Indonesia, from January to April 2023.

MATERIALS AND METHODS

Sample selection

This study uses a quantitative approach. The population in this study were tourists visiting WS from January to April 2023. The study was conducted by
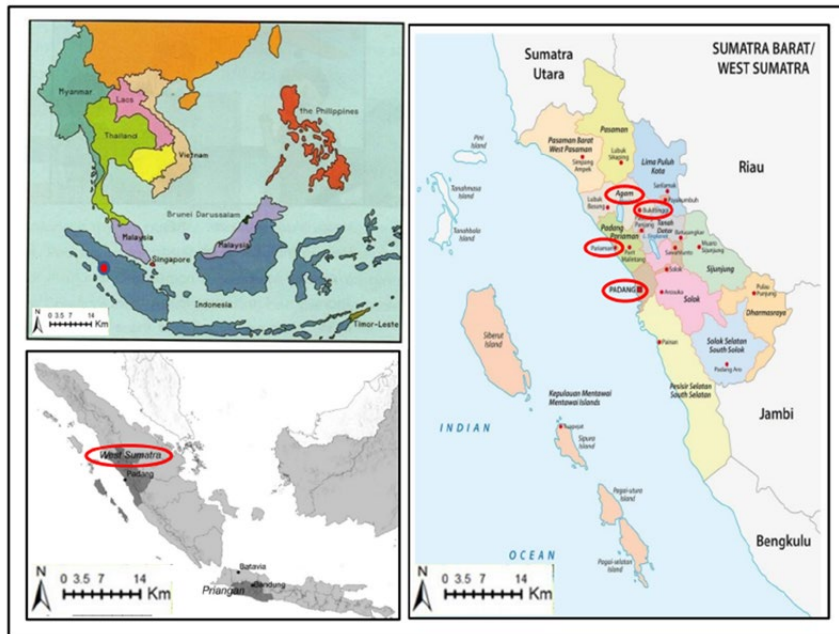
Fig. 1: Geographic location of the study area in the tourists visiting the cities of Padang, Pariaman, Agam, and Bukittinggi in Indonesia

distributing questionnaires to tourists visiting the cities of Padang, Pariaman, Agam, and Bukittinggi, where the geographic location of the study area is shown in Fig. 1.

Fig. 1 informs the location of the WS geographically, that is, on the line 00 54' North Latitude to 30 30' South Latitude and 980 36' to 1010 53' East Longitude with a total area of around 42,297.30 km^2 or 4,229,730 Ha including ±391 large and small islands in the vicinity. Then, the WS climate is generally tropical with quite high air temperatures, that is, between 22.6°C and 31.5°C. This province is also crossed by the equator, precisely in Bonjol, Pasaman. Furthermore, this study uses a side accidental technique, where samples are taken randomly, without prior planning. Moreover, this study uses the hair formula that the number of representative samples depends on the number of indicators multiplied by 5 to 25 (Tejada and Punzalan, 2012). Based on this explanation, this study uses 20 indicators multiplied by 21, so the number of samples used is 420, which is shown in Table 1.

This study uses grouping characteristics of respondents based on age, occupation, and income. This is accomplished because of various tourists, so grouping the characteristics of the respondents, the interest of certain groups in visiting tourist destinations (TDs) in WS can be known. Based on the tourist age group, it was dominated by tourists aged 18–30 years

by 53%. Based on the work of tourists, the number is almost average between students, private employees, and government employees. Based on tourist income, it is dominated by tourists with an income of 65–650 USD by 51%.

Variable measurement

This study uses a Likert scale questionnaire to measure the respondent's level of agreement or disagreement with certain statements. All variables in this study were measured using a Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree). This study comprises four variables. ST consists of five indicators, and TS consists of five indicators. The EWOM comprises five indicators. The PEB consists of five indicators. The total indicators used in this study were 420 respondents, as shown in Table 2.

Data analysis

The data is analyzed using the partial least square–structural equation modeling (PLS-SEM). PLS-SEM investigates the relationship between unobserved or latent variables in a relatively complex research model with exogenous/independent, moderating, and endogenous/dependent variables. Using PLS, simultaneous hypothesis testing results can be obtained by minimizing measurement and

Table 1: Profile of respondents

Characteristics	Items	Achievement	
		Frequency	%
Age	18–30 years old	221	53
	31–40 years old	89	21
	More than 40 years old	110	26
Occupation	Student	151	36
	Private Company Worker	149	35
	Civil Servant	120	29
Income	65–650 USD	216	51
	Between 651 and 1,300 USD	98	23
	More than 1,300 USD	106	25

Table 2: Research IndicatorsTable 2: Research Indicators

Indicators	Measurement items	Sources
ST	5	Elshaer *et al.,* 2021
		Sobaih *et al.,* 2021
TS	5	Marques *et al.,* 2021
		Milman *et al.,* 2020
		Shayk-Baygloo, 2022
EWOM	5	Semrad and Rivera, 2016
PEB	5	Bilynets and Knezevic, 2022

structural errors. PLS-SEM analysis was conducted in accordance with the recommendations in two stages: 1) evaluation of the measurement model (outer model that explains the relationship between latent variables and their indicators and 2) evaluation of the structural model or inner model that explains the relationship between latent variables/constructs. This study investigates the relationship between the effects of ST, TS, EWOM, and PEB shown in Fig. 2.

TS has an effect on ST in West Sumatra Tourist Destinations (WSTD)

Public interest and strategies to promote ST can be assessed from TS, which include the increase in tourists' mental health through the happiness they feel after a tourist visit (Chai *et al.,* 2021; Gryshchenko *et al.,* 2022). Then, the implementation of ST aims to fulfill the expectations of TS who are satisfied with TD because they do not want TD to become extinct (Chai *et al.,* 2021; Song *et al.,* 2019). This is due to the possibility of return visits by tourists to the TD, where TS will contribute to ST (Khan *et al.,* 2022).

H1: TS has a significant effect on ST in WSTD

TS has an effect on EWOM in WSTD

Several factors influence EWOM, including TS and consumer experience (Akinci and Aksoy 2019; El-Manstrly *et al.,* 2021). Conversely, many previous studies also reveal that TS has an impact on behavior, which is closely related to EWOM for decision making (Campón-Cerro *et al.,* 2017; Chao *et al.,* 2021). In addition, perceived dissatisfaction and satisfaction can be an informal source of information because those who are satisfied will give positive EWOM reviews, so they will become loyal customers (Chen *et al.,* 2018; Yan *et al.,* 2018).

H2: TS has a significant effect on EWOM in WSTD

EWOM has an effect on ST in WSTD

EWOM informs positive or negative statements posted by visitors, so this marketing model has a challenge (Yan *et al.,* 2018; Yen and Tang 2019). EWOM is related to TS, which they will convey on social media to share information with the wider community who will travel so that it will influence a person's intention to travel (Gerdt *et al.,* 2019). Moreover, TS and ST have involved user-generated content as a data source for exchanging information between tourists through EWOM (Yan *et al.,* 2018).

H3: EWOM has a significant effect on ST in WSTD

PEB moderates the effect of TS on ST in WSTD

PEB reflects actions to manage behavior that reduces the physical and nonphysical carrying capacity of the environment (Berthold *et al.,* 2022; Top and
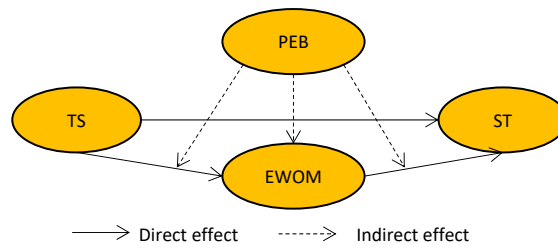
Fig. 2: Measurement model

Speekenbrink, 2022; Wyss *et al.,* 2022). Behind the various benefits of the tourism sector, it turns out that the number of visitors and increasing infrastructure in the tourism sector have a bad effect on the carrying capacity of the environment because it will produce waste such as rubbish (Koller *et al.,* 2023; Cuong *et al.,* 2022; Juniardi *et al.,* 2022). The aesthetics of DT will be disturbed if waste management is not carried out well, which in the long term will weaken EWOM for ST (Bilynets and Knezevic, 2022).

H4: PEB significantly moderates the effect of TS on ST in WSTD

PEB moderates the effect of EWOM on ST in WSTD

Waste in the form of garbage is a negative externality from the tourism sector to the environment because it will trigger environmental degradation due to the flow of waste generation (Bilynets and Knezevic, 2022; Ehzari *et al.,* 2022; Nowacky and Kowalczyk-aniol, 2021; Samimi *et al.,* 2023). The waste problem is caused by domestic and foreign tourists, where a 1% increase in tourist visits will result in an increase in the quantity of waste by 1.25% and an increase in waste generation by 0.51% (Rakotoarisoa, 2020). One action to reduce this problem is to enforce PEB through reviews posted on social media, namely, EWOM.

H5: PEB significantly moderates the effect of EWOM on ST in WSTD

PEB moderates the effect of TS on EWOM in WSTD

PEB can work in two ways, that is, it can strengthen and weaken TS and EWOM toward ST (Akinci and Aksoy, 2019). The sustainability of ST cannot be separated from the behavior of tourists who maintain the carrying capacity of the environment when they enjoy DT (Chao *et al.,* 2021). Contrasting conditions for tourists who do not maintain the environmental carrying capacity will hinder the sustainability of ST (Gerdt *et al.,* 2019). Then, TS will be achieved if the services provided by DT

match or exceed their expectations (Lee *et al.,* 2020; Stanton *et al.,* 2019). Additionally, EWOM contributes to creating subjective and objective reviews online to assist potential tourists in making visiting decisions (Quan *et al.,* 2021).

H6: PEB significantly moderates the effect of TS on EWOM in WSTD

RESULTS AND DISCUSSION

Evaluation of measurement and structural models

The first stage in the PLS-SEM analysis evaluates the measurement model to meet the reliability and construct validity criteria. The results in Table 3 show that the composite reliability (CR) values and Cronbach's alpha (CA) are within the acceptable range of the construct reliability standard, which is more than 0.70. The convergent validity standard for all individual items is within the acceptable loading factor (LF) criteria, which are more than 0.70 and are statistically significant (probability [p] values of <0.01). Similarly, the average variance extracted (AVE) values are more than 0.50, which indicates acceptable convergent validity. Discriminant validity (DV) was evaluated by comparing the square root of AVE with correlations between the constructs. The results in Table 3 indicate that the square root of AVE in the diagonal column is higher than the correlation between the constructs (the numbers in the same column), which shows that the discriminant validity criteria are met.

The results in Table 4 show the DV, in which two conceptually different concepts must show sufficient differences. The point is that a set of indicators that are combined are expected not to be unidimensional. DV refers to the degree to which certain constructs within the same model differ from one another. There are three types of analysis used to test DV, namely, Fornell and Larcker criteria, cross-loadings, and heterotrait–monotrait ratio (HTMT). HTMT analysis has been proven to be superior among other methods for

Table 3: Loading factor, composite reliability, average variance extracted, and Cronbach's alpha

Indicators	LF	CR	AVE	CA
ST		0.900	0.648	0.859
It is supported by ST on WS	0.579			
It participates in ST	0.798			
It complies with the regulations in force in WS to reduce the negative impacts of tourism	0.818			
It cooperates in planning efforts and ST	0.776			
It participates in the promotion, education, and conservation of the natural environment in WS	0.789			
TS		0.830	0.497	0.748
The visit overall was satisfactory	0.638			
Overall a pleasant visit	0.623			
The work-holiday experience at the destination was overall pleasant	0.774			
Involvement in working holiday tourism at the destination as a whole is enjoyed	0.756			
Working holiday travel to these destinations is a wise decision	0.720			
EWOM		0.886	0.556	0.845
Positive photos about WS will be posted	0.763			
Positive comments about WS will be provided	0.713			
Positive videos about WS will be posted	0.796			
Positive tweet posts about WS will be posted	0.769			
Family and friends will be tagged and mentioned when sharing experiences on social media	0.668			
PEB		0.900	0.648	0.859
Straws/bags/cups are used once at the destination	0.832			
Plastic bottles are placed in recycling bins at their destination	0.853			
Tumblers and lunch boxes are taken when traveling	0.839			
Trash is put in bags when the trash can is not visible	0.873			
Save water when bathing and performing ablution	0.593			

assessing discriminant validity because all HTMT ratios obtained are lower than the maximum threshold of 0.85. Thus, this study uses HTMT analysis in assessing DV.

Hypotheses testing results

The results in Table 5 show the hypothesized findings. The analysis results show the following: First, TS influences ST, which means that increasing TS will also encourage ST. Second, EWOM influences ST, which means that increasing EWOM will also encourage an increase in ST. Third, TS influences EWOM, which means that increasing TS will also encourage an increase in EWOM. Fourth, PEB moderates the influence of TS on ST, which means that PEB strengthens the influence of TS on ST. Fifth, PEB does not moderate the influence of EWOM on ST, which means that PEB weakens the influence of TS on ST. Sixth, PEB moderates the influence of TS on EWOM, which means that PEB strengthens the influence of TS on EWOM. ST is determined by its ability to adapt to tourist and TS conditions to fulfill these two things requires an innovative strategy (Preko et al., 2019). ST cannot be separated from the role of technology and innovation in the tourism sector, which can be grouped into three types. First, tourism planning can be conducted using online reservations, which includes most reservations for plane tickets and accommodation using online reservations. The presence of online reservation supporting applications makes ordering easier so it is very popular with people in this digital era. Second, on the road like a mobile phone is the best guide for traveling. A traveler can get various information just by using a smartphone, starting from the tourist attractions to visit, how to get there,

Table 4: Result of discriminant validity

	R	STD	TS	Z1	Z2	Z3	EWOM
R-square (*R*)	0.805						
Standard deviation (STD)	0.708	0.757					
TS	0.732	0.813	0.705				
Z1	0.470	0.114	0.178	1.000			
Z2	0.343	0.028	0.065	0.786	1.000		
Z3	0.470	0.114	0.178	1.000	0.786	1.000	
EWOM	0.618	0.814	0.773	0.059	-0.083	0.059	0.752

Table 5: Results of hypothesis

H	Hypotheses	Coefficient	*T*-values	Significant	Decision
H1	TS has a significant effect on ST in WSTD	0.318	5.204	0.000	Accepted
H2	TS has a significant effect on EWOM in WSTD	0.424	7.509	0.000	Accepted
H3	EWOM has a significant effect on ST in WSTD	0.633	12.281	0.000	Accepted
H4	PEB significantly moderates the effect of TS on ST in WSTD	0.147	3.035	0.003	Accepted
H5	PEB significantly moderates the effect of EWOM on ST in TD	0.073	1.286	0.199	Rejected
H6	PEB significantly moderates the effect of TS on EWOM in WSTD	0.177	4.148	0.000	Accepted

and places to eat typical of a region to places to shop for souvenirs. Third, post-trip, which includes sharing, going live, or posting activities, has become a daily habit for people, including when we are on a tourist trip. Additionally, ST must be integrated in three dimensions, namely, environmental, economic, and social. Based on the context of sustainable development, ST can be defined as tourism development that suits the needs of tourists while still paying attention to sustainability (conservation, environmental dimensions), providing opportunities for the younger generation to utilize (economic dimensions), and developing them based on the social order (social dimensions) that have been established.

ST must be more comprehensive in improving TS through support from improving the quality of infrastructure, as well as social and community improvements (Luo, 2018). ST research has been concerned with predicting such behavior. Sustainability is influenced by TS (Cai *et al.,* 2021). TS plays an important role in attracting public interest and strategies to promote ST (Cai *et al.,* 2021). The results of the study show that the positive atmosphere and quality attributes of the sustainability of a destination increase the happiness and satisfaction of tourists and

improve their mental health so that it has a significant impact (Cai *et al.,* 2021; Song *et al.,* 2019). Thus, ST is the hope of tourists who have been satisfied with the destination. Tourists do not want these destinations to become extinct. One day they might visit again if they are satisfied with the destination. This satisfaction will lead to loyalty. Therefore, it is suspected that ST affects tourist satisfaction and loyalty. For managers of TD, EWOM is valuable information. Loyal and trustworthy modern travelers usually like to share their experiences with others through reviews on the internet. EWOM is what helps attract friends, family, and other potential travelers. EWOM also serves as a guide for others. The point is to influence consumer decision making, product evaluation, and purchase intentions (Correia and Ferreira, 2020). Research (Correia and Ferreira, 2020) also explains that EWOM has an important role in the sustainability of tourism and hospitality destinations. EWOM is considered the most powerful form of advertising because consumers trust their friends 92% more than traditional media. Traditional marketing often comes in the form of paid advertising. These are often referred to as drivers of marketing activities. In contrast, EWOM marketing focuses on user-generated content to market brands (Bartschat

et al., 2022). In this study, it was revealed that the encouragement felt by customers will affect their intention to try. This will then make customers loyal to a product/brand. Therefore EWOM is proven to affect ST. Several factors influence EWOM, including customer satisfaction and experience, store decoration, and quality of service personnel. All aspects related to the restaurant brand can be considered as reference items (Chao *et al.,* 2021). Empirical research in this literature strengthens previous research on the relationship between satisfaction and EWOM. The results of the analysis that has been conducted show that there is a relationship between satisfaction and EWOM. This study finds that EWOM is promoted by consumers, has a greater impact, and is more effective than advertising. Furthermore, the results of the analysis show that satisfaction affects EWOM, in which the variable relationship is proven to be unidirectional. This finding means that the higher the TS value, the higher the EWOM. Conversely, the lower the TS value, the lower the EWOM. ST and EWOM are very important things in the tourism industry, so tourists' needs must be met so that they are satisfied with what they want. Positive environmentally friendly behavior keeps TD clean and comfortable. However, there are also tourist behaviors that have a negative impact on TD, for example, the waste generated and damage to facilities. Scattered trash disrupts the comfort of TD. More broadly, waste creates odors and spreads disease. This condition is certainly avoided by tourists. Widespread environmental pollution will, of course, weaken the link between eWoM and tourism sustainability (Bilynets and Knezevic, 2022). Research on PEB behavior has a strong potential to reduce environmental impacts. Appeals and invitations for TD managers to tourists to protect the environment will have an impact on the comfort of the tourists themselves. If tourists feel comfortable with travel, they will provide reviews of what they feel. Nowadays, tourists love to leave online reviews on their social media. This review will later be seen and read by internet users around the world so that it can be interpreted that tourists' eco-friendly behavior can strengthen the influence between EWOM and ST (Park *et al.,* 2022). PEB is a factor that can strengthen and weaken TS and EWOM against ST (Gerdt *et al.,* 2019). The challenges and obstacles faced in promoting and implementing PEB in the tourism industry are that ST must be able to pay attention to agreements, regulations, and laws at both national

and international levels so that it can run smoothly without obstacles. And also form cooperation with local communities to monitor and prevent violations of applicable regulations. Apart from that, ST must be able to guarantee sustainability, provide benefits to current society, and not harm future generations. This is because the assumption that tourism development has the potential to damage the environment is logical if it is linked to the increase in the number of tourists and the degradation of the tourism destination area. PEB that influences ST can guarantee sustainability, providing benefits to current society and not harming future generations. This is because the assumption that tourism development has the potential to damage the environment is logical if it is linked to the increase in the number of tourists and the degradation of the tourism destination area. Then, tourism must grow based on the principle of optimization, not exploitation. Apart from that, there must be periodic monitoring and evaluation to ensure that tourism development continues to run within the concept of sustainable development, using the principles of capacity management, both regional capacity, capacity of certain tourist attractions, economic capacity, social capacity, and other resource capacities so that ST can continue. Environmental sustainability and environmental comfort created through eco-friendly behavior from tourists strengthen ST. Conversely, tourists who are not aware of the importance of protecting the environment will weaken ST. TS has a role in building an impression on tourists. A sense of joy and happiness makes tourists willing to help tour managers develop these TDs. This means that the tourist manager's call to protect the environment will be obeyed by tourists. Thus, compliance with protecting and maintaining the environment, which is reflected in environmentally friendly behavior will strengthen the influence between TS on ST (Rakotoarisoa, 2020).

CONCLUSION

The main finding of this study is that TS and EWOM have a significant effect on ST in WSTD, respectively, 0.318% and 0.633%. TS has a significant effect on EWOM in WSTD of 0.424%. PEB significantly moderates the effect of TS on ST at 0.147% and TS on EWOM in WSTD at 0.177%. The results of the direct effect study show that TS and EWOM affect ST. This finding reinforces that if TS goes with their tour it will guarantee ST. Similarly, if tourists often make positive reviews on their social media, these TDs will become more

famous and crowded. This condition will make these TDs able to improve their performance. Improving the performance of TD guarantees ST. Then, TS influences EWOM. The pleasant impression experienced by tourists makes them provide positive reviews and testimonials on their social media accounts. Educational program strategy in encouraging PEB among tourists and tourism stakeholders through outreach activities to reach ST. Environmental education provides visitors with important knowledge about the natural environment and sustainability. Through educational programs, visitors can learn about local ecosystems, biodiversity, and environmental challenges facing tourist destinations. This information helps visitors understand how important it is to protect and preserve the environment they visit and the positive impact they can have through appropriate actions. Apart from knowledge, environmental education also helps change the mindset and behavior of visitors. By understanding the negative impacts that irresponsible actions can cause, visitors will be more likely to adopt sustainable practices when traveling. They will reduce waste, use natural resources wisely, and respect local flora and fauna. In this case, environmental education acts as a trigger for sustainable behavior change. Furthermore, environmental education helps build awareness of the importance of visitor involvement in environmental conservation efforts. Visitors can learn about existing conservation programs and initiatives in tourist destinations, as well as how they can contribute and help in maintaining sustainability. By understanding that they have an important role in environmental conservation, visitors will feel involved and committed to contributing to conservation efforts. Moreover, environmental education can be provided via various communication channels, such as information signs, guides, brochures, or educational tours. Tourists are also urged to maintain the beauty of nature by not destroying the beauty of natural sites with graffiti and pictures. Preserving the natural surroundings is also one of the efforts to assist the development of ST. Based on the conclusions of the study results, community participation should be the basis for ST WSTD. If the government carries out ST in WS, it must partner with the community through social roles, cultural roles, economic roles, trust, networks, and norms, which are the pillars of tourist attractions in WS, which are embodied in Sapta Pesona. The role of the private sector must be further optimized in promoting tourism in WA through print or electronic media and organizing tourism events. The private sector partners with communities around tourist destinations in building accessibility and collaborating with the government and related stakeholders, in the field of human resource development. Tourism developed in WA must maintain social capital in the form of cultural values, customs, and norms that apply in society so that local culture is not damaged or displaced due to tourism development. The diverse cultures and customs must be developed to become a tourist attraction. Local community participation in ST must be further increased by strengthening organizations in the tourism sector, such as forming culinary and souvenir groups, which are the main source of livelihood for the WS community. Furthermore, the WA government must pay attention to three main components to achieve ST in WSTD, namely, environmentally sustainable, economically sustainable, and socioculturally sustainable. Environmental sustainability is carried out through the optimal use of environmental resources by limiting resources, maintaining ecological processes, and maintaining the sustainability and existence of natural heritage and biodiversity in tourist destinations. Economic sustainability is carried out by reducing poverty levels, encouraging economic growth, and creating jobs. Meanwhile, sociocultural sustainability is carried out by maintaining the sociocultural authenticity of local communities with mutually agreed rules and regulations, preserving local cultural heritage and customary values, and increasing intercultural tolerance and understanding. Apart from that, encouraging ST in WS requires an integrated plan involving various sectors and various stakeholders. In tourism development, four things must be fulfilled, namely, attractions, accessibility, amenities, and ancillary services, the fulfillment of which involves various sectors and stakeholders. This integrated planning contains spatial planning, which must be according to the regional spatial plan; calculation of carrying capacity, such as ecological carrying capacity, physical carrying capacity, and social carrying capacity; environmental impact analysis studies or environmental management efforts; environmental monitoring efforts; environmentally friendly use of natural resources; and the roles and responsibilities of each stakeholder. Based on the limitations of this study, ST also must be developed apart from the variables that have been studied in this study (TS and EWOM). Other factors can affect ST, including tourist experience and traveling benefits. This study has also analyzed the

direct effect. The next researcher is expected to continue research by investigating the effect of mediation. This study has only shown PEB as a moderating variable; future researchers are expected to add other variables such as travel benefits, tourist well-being, and self-control. Future trends and emerging research directions in the field of ST concerning PEB behavior seek to realize three qualities, namely, tourism must be able to realize the quality of life of local communities, tourism must be able to provide quality effort to service providers in the tourism industry, and the next and most important thing is to create a quality tourist experience.

AUTHOR CONTRIBUTIONS

N. Zulvianti, the corresponding author, has contributed to preparing all the tables and figures and interpretation of the results and participated in the interpretation of the PLS-SEM results and manuscript preparation. H. Akmal, the second author, has contributed to preparing all the tables and figures and interpretation of the results and participated in the interpretation of the PLS-SEM results and manuscript preparation. M.R. Putra, the third author, has contributed to preparing all the tables and figures and interpretation of the results and participated in the interpretation of the PLS-SEM results and manuscript preparation.

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CONFLICT OF INTEREST

The author declares that there is no conflict of interest in terms of the publication of this manuscript. Moreover, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy, have been completely observed by the authors.

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ABBREVIATIONS

%	Percent
=	Similarity
()	Parenthesis
<	Less than
±	More or less
^{o}C	Degrees Celcius
AVE	Average variance extracted
CA	Cronbach's alpha
CR	Composite reliability
DV	Discriminant validity
et al.	Et alia
EWOM	Electronic word of mouth
Fig.	Figure
GMTI	Global Muslim travel index
H	Hypothesis
H1	Hypothesis 1
H2	Hypothesis 2
H3	Hypothesis 3
H4	Hypothesis 4
H5	Hypothesis 5
H6	Hypothesis 6
Ha	Hectare
HTMT	Heterotrait–monotrait ratio
LF	Loading factor
P	Probability
PEB	Pro-environment behavior
PLS	Partial least square
R	R-square
SEM	Structural equation model
SGIE	State of global Islamic economy

ST	Sustainable tourism
STD	Standard deviation
TD	Tourist destinations
TS	Tourist satisfaction
T-value	or T-score ratio of the difference between the mean of the two sample sets
USD	United State dollars
WOM	Word of mouth
WS	West Sumatra
WSTD	West Sumatra tourist destinations
Z1	Moderation 1
Z2	Moderation 2
Z3	Moderation 3

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