



Perception of Tourism Impact to Support Tourism Development: The Case of Chakma Indigenous Community in Rangamati, Bangladesh

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Abstract

The paper aimed to identify an indigenous community perception of tourism impacts to support tourism development and to study whether length of residence and distance from tourism zone moderates the perception. This study adopted the Social Exchange Theory (SET) as a theoretical basis. Data were collected from 375 Chakma indigenous community members residing in Rangamati, Bangladesh through a questionnaire survey. Questionnaires were designed following a non-forced approach to avoid biases and to obtain the actual perceptions. The data were analyzed by Structural Equation Modeling (SEM). Results suggested that only the economic impact had greater and significant effect on the community perception to support tourism development than the socio-cultural and environmental impact and only length of residence moderates the perception of economic impact. This study findings offer recommendations to the stakeholders to create additional economic opportunities for the host community as well as initiate crowd management program and behavioral awareness events for tourists to improve the indigenous community support for tourism development.

Keywords: Indigenous community, perception, tourism impacts, tourism development

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Introduction

Indigenous peoples are those who self-identify themselves as indigenous peoples with historical continuity of inhabitation in a certain area, strongly attached to the territories or surrounded natural resources, retaining social, economic, political systems with a distinct language, culture, norms, and beliefs and are non-dominant in the society (ILO., 2013). According to the UNWTO (2007), for sustainable development of a destination, there are some potential stakeholders in tourism namely community, public sector, Non-Governmental Agencies (NGO), and tourists. A community is a group of people who share a geographical area and are bound together by a common culture, values, race, or social classes (Rasoolimanesh & Jafar, 2016a). Communities are regarded as the prime stakeholder who plays a significant role for sustainable tourism development and they are the ones who affected most by the tourism activities and decisions made of tourism planning and development of a particular destination either positively or negatively (Boonsiritomachai & Phonthanukitithaworn, 2019; Curto, 2006; Eshliki & Kaboudi, 2012; Lo, Ramayah, & Hui, 2014).

According to Rasul (2016), tourism regarded as a potential source of development in Rangamati due to its rich biodiversity, flora & fauna. To promote tourism in this region, proper planning and coordination are required to receive the positive impacts and remove the negative impacts. Rangamati is home to seven distinct indigenous communities and Chakma's are the largest in number (Talukder, Paul, & Council, 2013). Therefore, being the dominant inhabitants, their perception of tourism impacts holds significant importance of study as McGehee & Andereck (2004) stated that resident's perception of the tourism impacts is an important consideration for successful development and operation of tourism. However, their participation level in tourism is non-significant because the economy of Rangamati is mainly rely upon agriculture, specifically on shifting cultivation (Miah, Chakma, Koike, & Muhammed, 2012; Talukder, Paul & Council, 2013) and apart from that, most of the Chakma community members are economically dependent on service, forestry, fishery, and other businesses (Muhammed, Oesten, Von Detten, Masum, & Chakma, 2010). Tourism can be another economic opportunity for the community members as Miah, Chakma, Koike, & Muhammed, (2012) reported that Rangamati lack of alternative income generators. Therefore, exploring their perception of tourism impacts and their support for tourism development is a significant research gap.

Research Objective

1. To identify the community perception of tourism impacts to support tourism development.
2. To explore the moderating effect of the length of residence and distance from tourism zone that influence the community perception of impacts to support tourism development.

Conceptual Framework

The paper investigates the community perception of economic impact, environmental impact and socio-cultural impact that influence the community to support tourism development. This paper also examines whether length of residence and distance from tourism zone moderates the perception of the impacts. The following figure (Figure 1) illustrates the proposed framework.

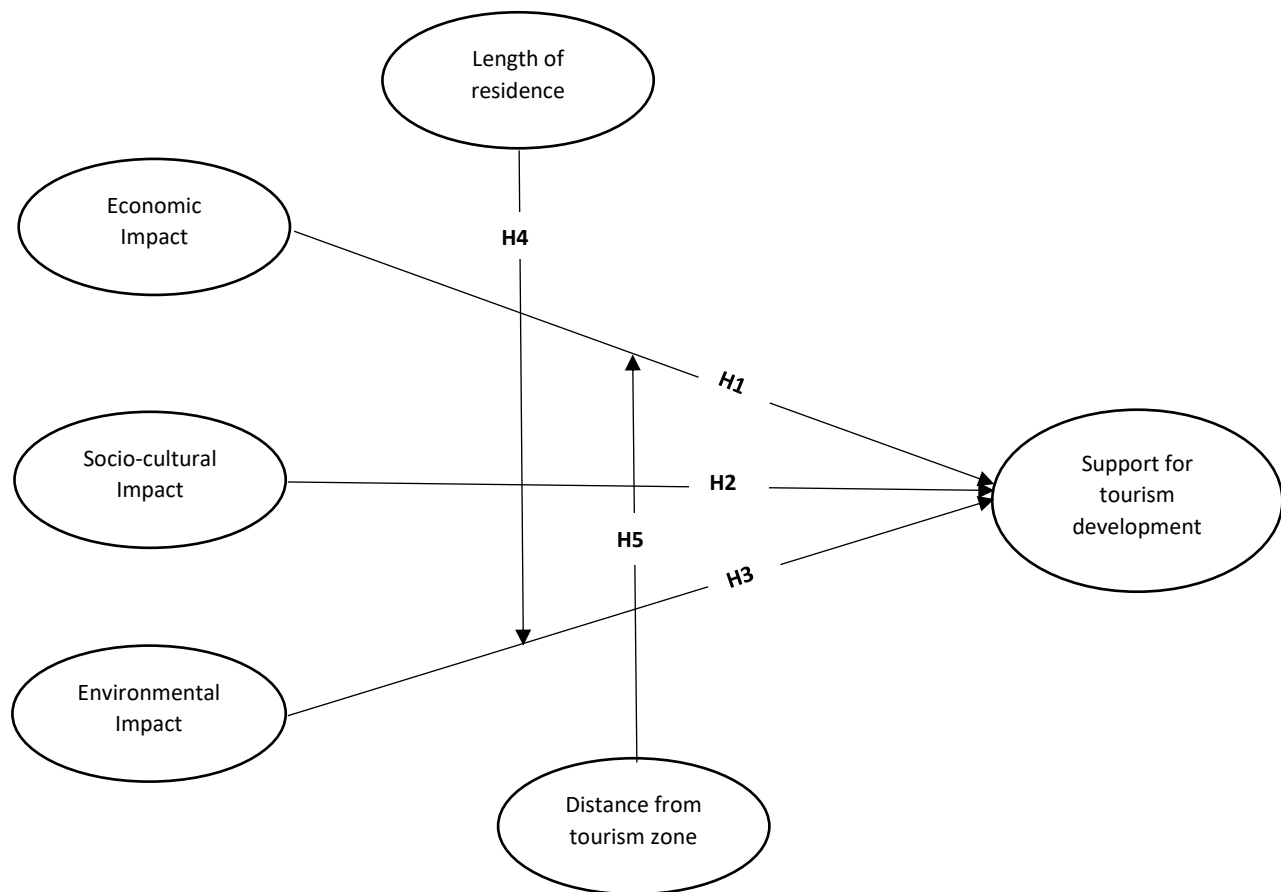


Figure 1 Conceptual Framework

Literature Review

Theoretical Basis

There are several theories that have been used to explain the perception of tourism impacts. Based on the extensive review of previous tourism literature, SET has been used mostly to measure the perception of the impact of tourism because SET considered as the dominant theory (Ap, 1992; Cardoso & Silva, 2018; Hammad, Ahmad, & Papastathopoulos, 2017; Latip, Rasoolimanesh, Jaafar, Marzuki, & Umar, 2018; Nunko & Gursoy, 2012; Sharpley, 2014; Xu, Barbieri, Anderson, Leung, & Rozier-Rich, 2016) and due to the same reason this study used SET as the theoretical framework. By definition, social exchange theory involves the trading and sharing of resources between individuals and groups. In the context of tourism, this exchange process happens between the tourists and the local people. Both parties engage in this process by seeking mutual benefit and exchanging relationships (Andereck, Valentine, Knopf & Vogt, 2005; Ap, 1992; Cardoso & Silva, 2018; Sharpley, 2014; Styliadis, 2018). Referring to Ap (1992), the residents who view the exchange as significant for their well-being they will participate and oppositely, the residents who view the exchange as conflictual and detrimental, will not participate and disregard the tourism development. In accordance with Sharpley (2014) and Latip, Rasoolimanesh, Jaafar, Marzuki, & Umar, (2018), if the social, economic and environmental costs outweigh the benefits, the residents will withdraw their support from tourism. Conversely, if the benefits of tourism development exceed the related costs, the residents will be encouraged to support tourism development. The cost refers to the unfavorable and negative impacts such as; increase of traffic congestion, living cost, price of housings and lands, littering, etc. and the benefits indicate the favorable and positive impacts including employment opportunities, investment, preservation of natural resources, etc. (Jurowski & Gursoy, 2004).

Community perception of tourism impacts and its moderating effects

Perception refers to the mental translation of individuals expressions which may be undeniably distinct from fact. Perceptions inform an individual's attitudes (tendency to behave in a certain way) and that both terms are closely related (Pickens, 2005). Since the community possesses homogenous characteristics, their perceptions refer to the common reaction of a certain interest. In several tourism studies, the terms "attitudes" and "perceptions" are used interchangeably and measured with the same items and scales (McGehee & Andereck, 2004). Therefore, in terms of tourism development, perceptions are measured to realize how a community interprets the positive and negative impacts of tourism (Xu, Barbieri, Anderson, Leung, & Rozier-Rich, 2016) because community perception can determine the impacts of tourism development on the host community. According to Cardoso and Silva (2018), academic attention has been paid to the impacts of tourism because tourism relates to the economic, socio-cultural

and environmental dimensions. Aref, Redzuan, & Gill (2009) stated that tourism yields positive and negative impacts on host communities. Albeit the community members seldom regarded as an equal stakeholder, but if the positive impacts outstripped the negative impacts, the communities will support tourism development (Latip et al., 2018). However, the local community's negative perception of tourism impacts is directly linked with the ratio of the number of tourists to the host community. If the proportion of tourists increased, it directly affects the overall perceptions negatively (An, 2006). And it is inevitable that, for the long term success in tourism development, it is very crucial to have the support of the residents (Lo, Ramayah, & Hui, 2014). For sustainable community development, community participation in economic activities is required (Eshliki & Kaboudi, 2012) because tourism development is usually justified based on economic benefits and challenged on the grounds of socio-cultural or environmental destruction.

The studies of economic impacts given importance to the benefits that gather to the destination area and neglect the cost. The residents of the study of Latip, Rasoolimanesh, Jaafar, Marzuki, & Umar, (2018) & Rasoolimanesh, Jaafar, Kock, & Ramayah (2015) illustrates a strong perception on personal economic benefit than community social benefit because of economic benefit deeply refers to individual benefits but social benefits refer to collective and community-wide benefit. And based on Sharpley (2014), benefits can't be achieved without any cost. Several previous studies found several positive economic impacts such as increase income, retailing development, job opportunities, investment (An, 2016; Andereck, Valentine, Knopf & Vogt, 2005; Aref, Redzuan, & Gill, 2009; Cardoso & Silva, 2018; Eshliki & Kaboudi, 2012; Hammad, Ahmad, & Papastathopoulos, 2017) with some negative economic impacts. For example, increased cost of living, increase the price indexes, (Andereck, Valentine, Knopf & Vogt 2005; Aref, Redzuan, & Gill, 2009; Brunt & Courtney, 1999). The negative economic impacts increase the usual price of daily necessities such as entry tickets to any recreational sites, transportation cost, daily goods, etc. which make life very challenging to survive especially to the low-income peoples. Tourism development can also affect the socio-cultural aspects of a community. Socio-cultural impacts defined as a way in which tourism contributes to changes in socio-cultural conditions. Ap and Crompton (1998) mentioned that the social and cultural impacts of tourism refer to how tourism is perceived to contribute to changes in value systems, individual behavior, collective lifestyles, moral conduct, and community organizations. Socio-cultural changes happen by the interaction between hosts and guests. Past studies also found some positive and negative socio-cultural impacts such as increased noise and disturbance, crime and social problems, improve the image of the city, interrupt quite life in the city, liveliness, improve social and cultural life (Cardoso & Siilva, 2018; Eshliki & Kaboudi, 2012; Rasoolimanesh & Jaafar, 2016b). Environmental impact refers

to how tourism development contributes to the environment (Hammad et al., 2017). In terms of environmental impacts, such impacts include revitalize natural landscape, enhance soil erosion, vegetation disappearance, increase wastewater, increase garbage, increase water pollution, decrease agricultural fields (Cardoso & Silva, 2018; Eshliki & Kaboudi, 2012; Rasoolimanesh & Jaafar, 2016b).

This study intends to explore the moderating effect of the length of residence and distance from tourism zone on the perception of tourism impacts to support tourism development. Length of residence refers to the number of years that an individual resides in a particular place (Papastathopoulos, Ahmad, Al Sabri, & Kaminakis, 2019). Length of residence is of little consequence when it comes to residences' attitudes toward tourism development (Khoshkam, Marzuki, & Al-Mulali, 2016). Length of residence found to be influential in several earlier studies but the results were found contradictory. The study of Khoshkam, Marzuki, & Al-Mulali (2016) highlights the length of residence would have negative effects on socio-cultural impacts toward tourism development. In a similar vein, Xu, Barbieri, Anderson, Leung, & Rozier-Rich, (2016) report that the residents who are living in a certain place for a long time are perceived to be greatly aware of the socio-cultural effects of tourism. Khoshkam, Marzuki, & Al-Mulali (2016) also found that the length of residence would have a positive effect on economic impact and a negative effect on the environmental impact of tourism development. In this study, the length of residence was grouped into ≤ 10 years, 11-30 years, and 30+ years (Brown & Raymond, 2007). Distance from tourism zone is another factor to explain the variation of perception of tourism impacts. According to Jurowski & Gursoy, (2004), distance from tourism zone refers to how far the residents live from the tourist's attractions. The findings of Khoshkam, Marzuki, & Al-Mulali (2016) represent that the greater the distance, the more negative attitudes of tourism will be which affects the negative socio-cultural impact. If the distance is less, the residents can participate in several economic activities which will generate monetary benefits to them and these findings are found similar to Faulkner & Tideswell (1997). Surprisingly, Khoshkam, Marzuki, & Al-Mulali, (2016) also found that distance from tourism zone moderates negatively on the perception of environmental impact. Following Jurowski & Gursoy, (2004), this research classified the respondents into three groups; *close-to-attractions*, *far-from-attractions*, and *in-between*. Considering these findings from past literature, this study proposing the following hypotheses:

H1: Perceptions of economic impact positively influence the community support for tourism development.

H2: Perceptions of socio-cultural impact negatively influence the community support for tourism development.



H3: Perceptions of environmental impact positively influence the community support for tourism development.

H4: Length of residence moderates the community perception of tourism impacts and their support for tourism development

H5: Distance from tourism zone moderates the community perception of tourism impacts and their support for tourism development

Methodology

Study area

This study was conducted in the Rangamati district of Chittagong Hill Tracts (CHT) in Bangladesh over four weeks during July and August 2019. CHT is the only extensive hilly region of Bangladesh that lies in the southeastern part of the country consisting of three districts; Rangamati, Khagrachari, & Bandarban. With 6116.11 square kilometers, Rangamati is the largest district of CHT as well as Bangladesh. Rangamati is known as the *Lake District* contains the largest manmade *Kaptai lake* in Bangladesh. Unquestionably, the main attraction of Rangamati is the enormous lake with the outstanding natural scenery of mountains. This lake spans over an area of approximately 1,036 square kilometers. Due to the abundance of natural resources, Rangamati is an ideal destination for holidaymakers, leisure and adventure tourists. Apart from environmental assets, Rangamati is also distinct in terms of diverse ethnicity. Every year this diversity also draws the attention of tourists from different parts of Bangladesh as well as overseas to visit Rangamati to interact and experience the cultures and festivals of the indigenous communities (Shamsuddoha, Alamgir, & Nasir, 2011).

Survey Instrument and measurement of variables

This study adopted a quantitative research method with a set of survey questionnaires consisting of a total of fifty items where forty-three items were of four constructs and seven were descriptive. The fifty questionnaires were divided into three parts. The first part captured the respondent's demographics including gender, age, occupation, education, yearly income, length of residence and distance from tourism zone. Age was categorized into four groups: 18-23, 24-42, 43-54, 55-73. Seven categories captured occupation: student, private service/business, govt. service, housewife, retired, not employed and others. Five education categories were included: below higher secondary school, higher secondary school, bachelor's degree, master's degree, above master's degree. Six categories captured yearly income: ≤ 1800 , 1801-3300, 3301-4800, 4801-6300, 6300+ USD and no income. Length of residence was grouped into ≤ 10 years, 11-30



years, and 30+ years and distance from tourism zone was grouped into close to attraction, In-between, and far from attractions.

The second part included 34 items regarding the perception of tourism impacts of three independent latent variables. The variable Economic Impact (EI) consists of 10 items, Socio-Cultural Impact (SCI) consists of 15 items and the Environmental Impact (EI) consists of 9 items. The items were derived from a comprehensive review of similar extant studies (Ap & Crompton, 1998; Eshliki & Kaboudi, 2012; Xu, Barbieri, Anderson, Leung, & Rozier-Rich, 2016). All these items measured using a 5-point Likert-type scale (1 = significantly decreased to 5 = significantly increased). These items were developed by following a non-forced approach to assess the impacts because Boonsiritomachai & Phonthanukitithaworn, (2019) report that, this approach includes a series of impartially undirected phrased statements that instigate the informants to state their position. However, past studies have used these 34 items in a partially inclined and directional pattern to the potential impacts. For example, *Increased the price of goods and services* which indicate a direction by using *Increased* phrases. This sort of measurement approach reflects the academic's self-settled indication of the potential impacts rather than the respondent's personal opinions (Andereck, Valentine, Knopf & Vogt, 2005). Hence, to overcome the biases and to obtain the actual tourism impacts perception, this study adopted the non-forced approach measurement.

One dependent, latent variable namely Support for Tourism Development (STD) was examined by 9 statements in the last part (An, 2016; Rasoolimanesh & Jaafar, 2016a; Stylidis, Biran, Sit, & Szivas, 2014). These items were also measured using a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree). Due to the variation of attributes available in the literature, the selection of all the 43 items was based on common items that are the appropriate for all destinations.

Sampling and data collection

A simple random sampling approach has been applied to collect the data. By this approach, the samples were selected randomly and purely by chance. The population of the Chakma indigenous community in Rangamati is 260,445 (Talukder, Paul & Council, 2013), and following the table for determining sample size from a given population of Krejcie & Morgan (1970), 420 samples have been determined as total sample size. Those questionnaires were distributed to thirty potential respondents as a pilot study to check the reliability using Cronbach alpha value. To obtain reliability, the value should be equal to or more than .700 and the results show that the values of economic impact and socio-cultural impact were above .700 but the values of environmental impact and support for tourism development were lower than the required value. However, following *Cronbach alpha if deleted* statistic provided by Statistical



Package for the Social Sciences (SPSS), two items from environmental impact and one item from support for tourism development has been deleted and consequently, the Cronbach alpha values increased. Finally, the Cronbach alpha values of forty items of four latent constructs shows above .700 that considered as acceptable (Economic impact = .774, Socio-cultural impact = .770, Environmental impact = .801, Support for tourism development = .799).

The data for this study were collected through online and in hard copy form because using a multimodal survey process improves the representativeness of the sample without biasing the results. The explanation for using the online platform is, some community members were absent at the study site during the data collection period but, they were interested to participate through online. However, through an online survey, there is less chance to have improper data if the online version is properly administered. Online copies were circulated by sharing a link in social media to 100 potential respondents. The hard copies of the survey questionnaires were circulated by visiting offices and several recreational sites. The aim of visiting the offices and recreational sites is the researchers can meet with a group of community members there at a time. But, prior to meeting someone at the offices, the researchers made an appointment. The researchers briefly explained about the aim of this study and the participation procedure as well as asked the respondents to participate. Those who were agreed and able to participate immediately on-site, the researchers cooperated accordingly. There are some advantages to receiving responses immediately on-site. First, the respondents are being well instructed for participating and second, the researchers can check the questionnaires whether there are any missing or improper responses. However, those who were not able to participate immediately, the researchers set a convenient time and place to get the questionnaire back with the consent of the respondents. Finally, 320 hard copies were distributed.

After distribution, the researchers received 86 online and 318 hard copy that illustrates a total of 404 responses from both versions. The reason for the shortage of responses is some hard copies went missing and lack of interest to participate in this study. However, out of 318 hard copies, 29 were removed due to improper and unusable answers but all the returned online copies were usable. Finally, 289 valid hard copies were confirmed for data analysis. Out of 420 sample size, the overall response rate for a total of 375 usable samples illustrates 85.2%.

Data Analysis

Data were analyzed by using SPSS for descriptive analysis and Analysis of a Moment Structures (AMOS) for validating measurement models and structural model. Maximum respondents were male (54.9%) and others are female (45.1%), maximum respondents were in the range of 24-42 years of age (50.9%) and the lowest group were in the range of 55-73 years (12.8%). Most of the respondents were engaged with Private service/Business (38.7%) and

housewives were the least (4.3%). The majority of the respondents obtained a master's degree (34.1%) but the above master's degree was very few (2.9%). Maximum respondents had no yearly income (24%), but the number of highest income categories are very low (8.8%). Most of the residents are living in Rangamati for 11-30 years (43.2%) and the maximum respondent's residence is in-between from the tourism zone (59.2%).

To examine resident's perception of tourism impacts, this study adopted Structural Equation Modeling (SEM) technique because SEM can be used to analyze the validity of the research model and the causal relationship between variables empirically, which cannot be calculated by regression analysis. In other words, this method has the features of general regression analysis and it is possible to conduct simultaneous estimation about correlations between variables. The method can also reflect the measurement errors in the analysis of model validity (Moon, Jeong, & Choi, 2017).

Measurement model testing

SEM consists of two distinct components namely i) Measurement model and ii) Structural model. To test the measurement model, Confirmatory Factor Analysis (CFA) will be applied to evaluate the observed indicators of each latent constructs separately. A measurement model examines the relationships between the latent variables and observed variables. It specifies how the latent variables or constructs can be assessed concerning the observed variables and may determine whether the observed responses are valid and reliable for the latent variables (Bagozzi & Yi., 2012). According to Anderson & Gerbing (1988), the measurement model should be evaluated individually first followed by overall model testing. If the primary estimation of the measurement model of this study didn't come up with a good fit model, several indicators with lower factor loadings of ≤ 0.40 have to be delete (Hair, Black, Babin, & Anderson, 2013). An indicator with minimum .40 factor loading can interpret a construct significantly. Factor loadings exhibit the correlation and relative importance of each indicator with the composite (Anderson & Gerbing, 1988; Yoon, 2002). After the deletion, if the model still does not provide a fit model, the highly correlated indicators are modified observing the modification indices. According to the modification indices, the correlation will be developed within the constructs because correlating within-factor error is easier to justify than across latent constructs (Hooper, Coughlan, & Mullen, 2008). Thus, to improve the model fit, some error indicators have to be correlated within the constructs because high inter-item correlations demonstrate a strong relationship to the latent construct and probably measure the similar thing (Yoon, 2002). Several fit indices are employed to assess the model fit including Chi-square (χ^2) of estimate model, Degree of Freedom (df), χ^2/df , Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR).

Modification Indices (MI) was also observed to develop a fit model. The minimum criteria are given in table 2 to constitute a good fit model.

Ten items were used to measure the CFA of Economic Impact (EI) and the result shows the imperfection of the model due to lower factor loading. Hence, EI7, EI8, and EI10 has been removed and proceeded to further estimation. Later, adjusting the high correlated indicators by using modification indices exhibited that the model got a better fit with seven indicators. A total of fifteen items were used to estimate the CFA of Socio-Cultural Impact (SCI). The elementary estimation results do not reflect a good fitting model due to the lower factor loading. Therefore, SCI1, SCI2, SCI3, SCI4, SCI5, SCI6, SCI12, SCI13 and SCI15 had to be eliminated. A new model with six indicators was re-estimated but still did not represent a good fit model and that required modification. The modification of the new corrected model containing six indicators was analyzed and that produced a satisfactory outcome. The primary estimation results of Environmental Impact (EnI) comprising seven observed indicators provides a defective model. Hence, EnI4, EnI5, and EnI7 had to be remove and the new result with four indicators shows a very good model fit. The primary estimation of final construct Support for Tourism Development (STD) consists of eight observed indicators that yield an imperfect model. Therefore, STD1 and STD3 had to be delete due to lower factor loadings and a new model with six indicators was re-estimated which still contains imperfection. As a result, observing the modification indices, the new model was modified by creating covariance's and that shows that it fits the data and presents an acceptable model. Finally, an overall measurement model has been estimated with these confirmed twenty-three items (Table 1) of four constructs. The estimation illustrates an acceptable fit model (Table 2).

Before conducting the structural model, this study examined the reliability and validity of four latent constructs with twenty-three items. Reliability includes the composite reliability test and Average Variance Extracted (AVE) to examine the convergent validity and discriminant validity. The Composite Reliability (CR) of each construct are above the minimum criteria 0.700 (Table 3). However, except for the support for tourism development, the AVE values of the other three constructs were below .500 but we still can accept the values that are less than .500 because CR is higher than 0.700 (Fornell & Larcker, 1981), to establish convergent validity. Discriminant validity refers to the distinctiveness of the constructs (Yoon, 2002). Discriminant validity was assessed with the Fornell-Larcker criterion (Fornell & Larcker, 1981). According to this approach, if AVE is greater than the Maximum Shared Variance (MSV) and Average Shared Variance (ASV), discriminant validity will be established.

**Table 1** Descriptive statistics of items

Constructs	Items	Code	Mean	SD	Factor loadings
Economic Impact (EI)	Amount of income	EI1	3.541	0.955	0.737
	Employment opportunities	EI2	3.160	1.070	0.716
	Amount of investment	EI3	3.883	0.911	0.539
	Living standard	EI4	3.725	0.926	0.518
	Number local businesses	EI5	3.403	0.992	0.730
	Price of Goods and services	EI6	3.795	0.920	0.478
	Economically beneficial members	EI9	3.059	0.992	0.627
Socio-cultural Impact (SCI)	Crime rate	SCI7	3.749	0.942	0.727
	Uses of drugs	SCI8	3.883	0.963	0.741
	Volume of alcoholism	SCI9	3.979	0.939	0.650
	Tension level	SCI10	3.877	0.967	0.581
	Overcrowding	SCI11	4.421	0.657	0.623
	Rate of noise	SCI14	4.216	0.816	0.642
Environmental Impact (EnI)	Pollution rate	EnI1	4.189	0.813	0.919
	Degree of littering	EnI2	4.304	0.912	0.763
	Amount of waste water	EnI3	3.851	0.927	0.535
	Deforestation rate	EnI6	4.272	0.904	0.426
Support for tourism development (STD)	Our community members should participate in tourism planning and development	STD2	4.189	0.996	0.582
	Tourism should be further developed in Rangamati	STD4	3.960	1.070	0.778
	The volume of tourists visiting Rangamati should increase	STD5	3.555	1.226	0.840
	The local authorities and government should support the promotion of tourism in Rangamati	STD6	3.851	1.134	0.837
	Tourism should be actively encouraged in our community	STD7	3.861	1.070	0.786
	I support tourism and would like to see it become an important part of my community development	STD8	4.000	1.099	0.626

Table 2 Measurement model test

Index	χ^2/df	GFI	AGFI	CFI	RMSEA	RMR
Standard	≤ 3 (Kline, 2005)	$\geq .9$ (Hair et al., 2013)	$\geq .9$ (Hair et al., 2013)	$\geq .9$ (Hair et al., 2013)	$\leq .05$ (Hu & Bentler, 1999)	$\leq .08$ (Hair et al., 2013)
Economic	1.569	.987	.967	.992	.039	.022
Socio-cultural	1.814	.989	.967	.992	.047	.018
Environment	.359	.999	.995	1.000	.000	.008
Support	1.183	.994	.978	.999	.022	.020
Overall	1.661	.925	.901	.960	.042	.053

Table 3 outlined the correlation of every construct, which illustrates that only STD <--> EI and EnI <--> SCI is significant at 0.001 level. In the same table, there is clear evidence that the MSV values and ASV values of each factor correlation are below AVE values. Consequently, we can say that the discriminant validity of the latent constructs has been proven.

Table 3 Reliability, validity, and correlation of the constructs

	CR	AVE	MSV	ASV	EI	SCI	EnI	STD
EI	0.816	0.400	0.121	0.042	1			
SCI	0.823	0.439	0.276	0.093	0.058	1		
EnI	0.768	0.473	0.276	0.093	0.054	0.525**	1	
STD	0.882	0.559	0.121	0.041	0.348**	-0.047	-0.016	1

** Correlation is significant at the 0.001 level

Results

SEM has been applied for testing hypotheses of a hypothetical model that prescribes relationships and influences between latent constructs and observed variables that are indicators of latent constructs. The Chi-Square value is the traditional measure for the sample and fitted covariance matrix. After analysis, this model provided a good model fit with a significant and acceptable threshold level for consideration with $\chi^2/df = 1.667$, GFI = .925, AGFI = .901, CFI = .959, RMSEA = .043, RMR = .053. The statistical significance level was set at $p < .05$ in this study.

The analysis reveals that the perception of economic impact positively influences the support for tourism development found significant ($b = .42$, $*p < .05$). But, the perception of socio-cultural impacts and the perception of environmental impacts influences the support for tourism development found statistically not significant with p -value .328 and .900 respectively. To



examine the moderating effect of length of residence and distance from tourism zone, this study estimated the significance of the difference by comparing the χ^2 statistics of the multi-groups constrained model and the unconstrained model. Table 4 shows the result of the moderating effect of length of residence that illustrates a significant effect on the perception of economic impacts to support tourism development (* $p < .05$).

Table 4 Moderating effect result of length of residence

Cause variable	Effect variable	Length of residence			Unconstrained model	Constrained model	Moderating effects	
		≤10 years	11-30 years	30+			$\Delta\chi^2$ (df)	p value
All variables constrained					819.71 (630)	834.76 (636)	15.05 (6)	.019*
Perception		Estimate	Estimate	Estimate				
Economic		.545	.641	.146	819.71 (630)	832.40 (632)	12.69 (2)	.05*
Socio	Support	.085	.32	-.149	819.71 (630)	819.23 (632)	.48 (2)	0.789
Environment		-.104	-.183	-.134	819.71 (630)	820.09 (632)	.387 (2)	0.824

* $p < .05$

There was no significant statistical evidence found to prove the moderating effect of distance from tourism zone on the perception of tourism impacts to support tourism development. However, in this model the Economic Impact, Socio-cultural Impact and Environmental Impact explains 18.4% of changes in support for tourism development ($R^2 = 0.184$; $p < 0.001$). In this case, only perceptions of economic impacts have been proved to be a statistically significant predictor of support for tourism development.

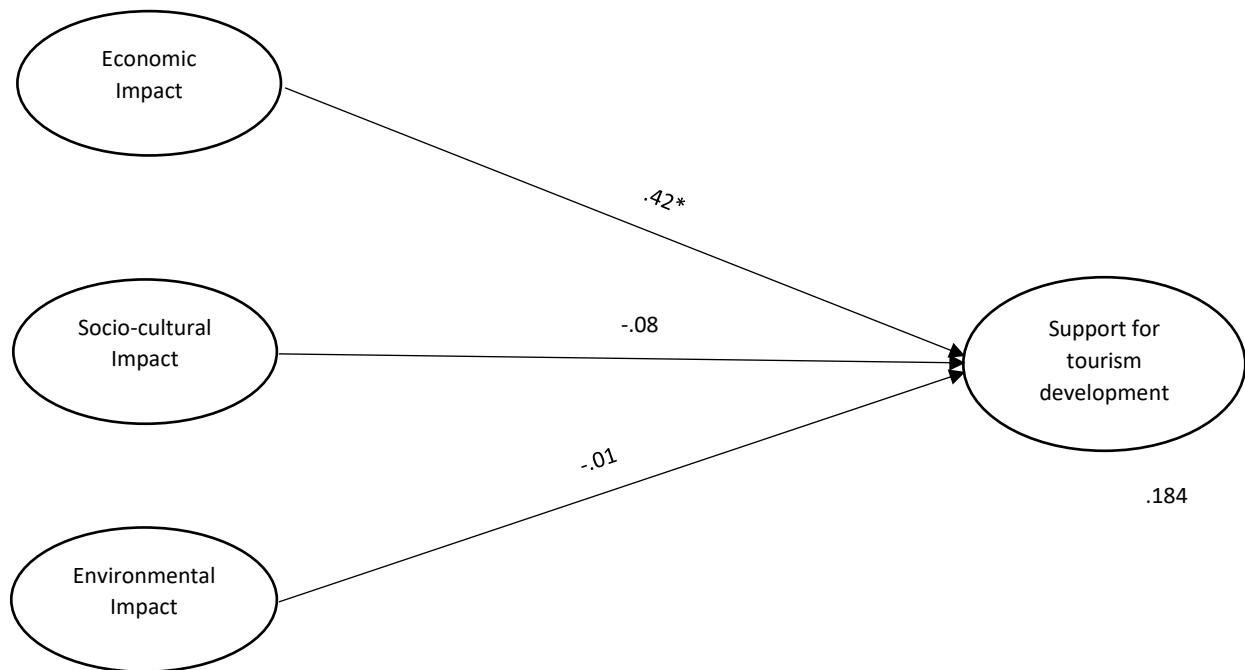


Figure 2 Structural equation model

Discussion

The study was undertaken to investigate the indigenous community perception of tourism impact to support tourism development as well as to explore the moderating effect of length of residence and distance from tourism zone that influence the community perception of impacts. According to the results, the community perception of economic impacts positively influences the support for tourism development which represents the economic impact has the greatest and significant effect to support tourism development and this result in accord with previous researches (Latip, Rasoolimanesh, Jaafar, Marzuki, & Umar, 2018; An, 2016; Boonsiritomachai & Phonthanukitithaworn, 2019; Nunkoo & Gursoy, 2012). An (2016) stated that the respondents value the economic benefits more than the socio-cultural and environmental costs because the studied location was in the involvement stage according to the destination life cycle stage of Butler (1980). According to Boonsiritomachai & Phonthanukitithaworn, (2019), locals are more supportive when they gain economic benefits from tourism activity. This studied community perceives the economic impact positively and supports the tourism development because they might believe that, tourism can bring economic prosperity to them. Moreover, tourism considered as a tool for economic development and a driver of economic diversification due to several benefits that tourism offers a community (Hammad, Ahmad, & Papastathopoulos, 2017). Hence, the more the indigenous communities perceive economic impacts positively, the greater their support increases to tourism development (Latip, Rasoolimanesh, Jaafar, Marzuki, & Umar, 2018). The finding shows that this community holds a negative perception of socio-cultural impact. This finding can be

explained by the fact that this community is realizing interruption in their socio-cultural life but that is still tolerable to support tourism development further. These interruptions include overcrowding, an increase of noise, alcoholism, etc. This studied community are residing in urban and suburban areas, however, the effect of the perceived socio-cultural impacts for the rural indigenous community may be less important (Rasoolimanesh & Jaafar, 2016a). Yu, Cole, and Chancellor (2018) stated that negative socio-cultural impacts affect community support negatively. Similar to that, Al-Masroori (2006) reported that the community can overestimate the economic benefits and underestimates the socio-cultural costs. Hammad, Ahmad, & Papastathopoulos, (2017) mentioned that socio-cultural impacts also depend on the type of tourists in expensive cities like Abu Dhabi. Moreover, this study found negative community perception of environmental impact to support tourism development which is consistent with An (2016), Konstantaki & Wickens (2010) & Prayag, Hosany, Nunkoo, & Alders (2013). One explanation for this study result could be the attachment of the environment to the indigenous community. The Chakma community in Rangmati is significantly dependent on the environment for food security and livelihood support (Miah, Chakma, Koike, & Muhammed, 2012). Traditionally, indigenous communities are knowledgeable about natural resources on which they closely rely on (Khisa, 1998). They can feel and witness the physical change of the environment through the development of tourism. In their study, Talukder, Paul & Council, (2013) also reported that deforestation is a major problem to maintain a natural and pollution-free environment in Rangamati. This finding is exceptional compared with previous studies because of the variances of the study context. The studies of Konstantaki & Wickens (2010); Prayag, Hosany, Nunkoo, & Alders (2013) were about mega sports events that affect the environment for the long term and the residents can't immediately visualize or perceive the environmental consequences.

The findings indicate that the length of residence moderates the perception of economic impact to support tourism development which is in accord with Khoshkam, Marzuki, & Al-Mulali (2016), Liu & Var (1986) & Faulkner & Tideswell (1997). This is because, no matter how long is the residency, this community feels and appreciates the economic gain from tourism development and is supportive. However, these findings contradict extant studies in other tourism destinations. An (2016) confirms that the length of residence does not moderate the perception of tourism impacts to support tourism development. However, Khoshkam, Marzuki, & Al-Mulali (2016) stated that length of residence moderates the socio-cultural impacts and environmental impacts negatively but residents living in the same place for the long term are very concerned and sensible on the socio-cultural values (Xu, Barbieri, Anderson, Leung, & Rozier-Rich, 2016). Concerning the moderating effect of distance from the tourism zone seem to have no moderating effect on the community perception of tourism impact to support tourism development. A possible explanation



is that the residing areas of the community members are scattered around the study site and most of the tourist attractions are situated in multiple locations. Consequently, the distance of residence from the tourism zone doesn't affect the community perception of tourism impacts. This result is distinct from the findings of An (2016) & Khoshkam, Marzuki, & Al-Mulali (2016). Referring to An (2016), distance from tourism zone only influences the perception of socio-cultural and economic impact because the destination was in the involvement stage and the communities are engaged with providing facilities to the tourists. The study of Khoshkam, Marzuki, & Al-Mulali (2016) stated that those who are living far away from the tourism zone, their socio-cultural life remains unaffected and residents living near the tourism zone, are involved in economic activities and gain monetary benefits. Jurowski & Gursoy (2004) expressed that the residents living closest to the attractions feel that they are being interrupted and losing their usual rights to use the recreational resources by the tourist's activities which is opposite to those who are living furthest from the tourism zone. As a result, the residents living furthest away are more supportive of tourism because they think that if tourist's increases, there will be more benefits than costs. However, residents living in-between are less sensitive than those residents living closest to the attractions.

Recommendation

To actualize sustainable indigenous community development including controlling the resources, tourism is the only tool (Carr, Ruhanen, & Whitford, 2016). However, tourism should be developed in a way that is not disruptive to the host community. This paper sheds light on exploring the largest indigenous community perception in Bangladesh. The results found in this study offer several recommendations that are useful for all the stakeholders including the practitioners and academics.

Practitioners can collaborate indigenous values in tourism development and address the areas of the community frustration and dissatisfaction. Besides, they should initiate particular tourism development strategies for this destination that value the distinctiveness of this destination. The strategies should emphasize the community's positive perceptions and eliminate their negative perceptions. The indigenous community in this study perceives the economic gain positively and supportive of tourism development but still, they should participate more deeply in tourism activities. Stakeholders may offer several additional adventure activities like jet skiing, hiking, trekking, zip-lining to the tourists that provide the community more opportunities to participate and generate more economic potential. The possible reason for the lower participation is, tourism can't ensure economic security and sustainability for them. They may have to struggle to survive during any regional and global crises. However, formulating sustainable economic strategies can yield remedies to encounter



any crises. Through social sustainable practices, it is expected to mitigate the negative socio-cultural perceptions of the community. Considering the sensitivity of the community members, stakeholders may initiate a crowd management program to organize the massive flow of crowds. Behavioral awareness events also recommended for the tourist to obey the basic norms and pay due respect to the local socio-cultural setting. Stakeholders should circulate these events using social media or any sources to increase community support. The studied indigenous community members are highly attached and greatly concerned about environmental degradation because it is a major breadwinning source for a significant number of people. Tourism officials, planners, and policymakers can collaborate with environmental specialists or officials and launch sustainable environmental and tourism practices to prevent degradation. Promoting green tourism and community-based eco-tourism might be an ideal solution for environmental conservation.

However, this study is associated with few limitations that might be recovered by conducting new research by the academicians. First, this study was conducted on the Chakma indigenous community in Rangamati which can't be generalized as all resident's perceptions of Rangamati. Future research could consider expanding the research to all the residents of various ethnicities. An additional possible future direction of this research is to conduct a follow-up and longitudinal study to monitor the changes in perceptions. Future research could also consider a qualitative approach because that approach could yield new variables that may influence the community perceptions that were not included in this study.

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