



# An exploratory survey on satisfaction levels amongst tourists in the Vhembe Biosphere Reserve

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## Abstract

This study investigated tourist's satisfaction levels and their willingness to make repeat trips to the Vhembe Biosphere Reserve (VBR). The role of ecotourism as an environmentally friendly economic activity is widely recognised for enhancing nature conservation while addressing the development needs of local communities. Thus, ecotourism constitutes a very important component of national and international tourism industries. Unlike traditional conservation approaches which have encouraged unsustainable development, Biosphere Reserves (BRs) are based on a unique zonation landscape model comprised of three zones, namely, an inner core area, buffer zone and an outer transition zone. Results from our survey revealed that the majority of respondents (>62%) visited tourism facilities within the VBR at least more than once per year while over 90% of them were willing to visit them again and make recommendations to others. While the main reason for touring the VBR was to derive pleasure and relaxation (67.2%), research (10.92%) and cultural activities (15.6%) were also important pull factors. Furthermore, more than half of the respondents expressed high satisfaction levels for the quality of wildlife and tourism management and hospitality services provided (56%) and the information given to publicise tourism (54%) in the VBR. Lastly, general tourism satisfaction amongst respondents was found to correlate with several determinants, thus important in sustaining ecotourism in the VBR.

**Keywords:** Ecotourism, Pilot Survey, Vhembe Biosphere Reserve, Principal Component Analysis, Satisfaction and Willingness.

## Introduction

There is a growing research interest on the development of ecotourism nationally and internationally (Chiutsi et al., 2011; Gutiérrez-Yurrita et al., 2012; Habibah et al., 2013; Irina-Ramona, 2016; Morgan & Winkler, 2019; Vianna et al., 2012). Through ecotourism ventures, natural resources such as wildlife, wetlands and river networks, as well as geoscapes and minerals may serve as tourism attractions (Sharma, Rasul & Chettri, 2015; Brenner, Mayer & Stadler, 2016; Huveneers et al., 2017; Iasha et al., 2015). Ecotourism is considered to be a low impact economic activity that provide income generating opportunities complementary to nature conservation as well as the welfare of local populations (Fennell, 2001; Higham & Luck, 2007; Irina-Ramona, 2016). Because of growing environmental awareness coupled with the ecological value of conservation sites, so-called Biosphere Reserves (BRs) have become popular destinations for ecotourism (Diamantis, 1999; Fennell, 2001; Jamaliah & Powell, 2018; Li et al., 2005; Maikhuri et al., 2000; Marsalek et al., 2013; Schmitz et al., 2018). Since the inception of BRs by the United Nations Educational, Scientific and Cultural Organization's (UNESCO's) Man and the Biosphere (MAB) programme in 1970, 686 sites have been designated in 122 countries (UNESCO, 2019). Biosphere Reserves (BR) are regional entities designed for promoting environmental education, reconciling environmental concerns with local development priorities while integrating various approaches for the achievement of sustainable development in the protected landscapes.



Ideally, each BR is comprised of three conservation zones based on the degree of permissible human influence (UNESCO, 1996). The outermost and the most interactive zone is the transition area where human settlements are permitted and most of the economic, social and development policies are implemented. Connecting with the transition area is the buffer zone, where only ecologically sound activities such as ecotourism and research are allowed. Thus, the buffer zone provides a shielding effect on the innermost core zone, which is strictly protected for biodiversity conservation under stringent environmental policies (UNESCO, 1996; Batisse, 1997; Ishwaran, Persic & Tri, 2008). The majority of core zones are part of other conservation sites such as nature reserves, heritage sites and protected areas. Globally, BR's are regarded as living laboratories or sites of excellence for demonstrating sustainable relationships between humans and nature in a wide biogeographical context (Bridgewater, 2002; UNESCO, 1996; Reed et al., 2014; Mow et al., 2003; Schleper, 2017).

Although there is growing ecotourism research in South Africa (Adeleke, 2015; Hoogendoorn, 2017; Lee & Preez, 2015; Maciejewski & Kerley, 2014), relatively little is known on ecotourism development and satisfaction levels amongst tourists who visit South African BRs. Between the years 1998 to 2019, nine BRs have been designated (namely, Kogelberg, Cape west coast, Waterberg, Kruger to Canyon, Cape winelands, Gouritz cluster, Magaliesberg, Garden route, and Vhembe) in South Africa (UNESCO, 2019). Since some of the areas designated as BRs are under the threat of human-induced degradation which can cause environmental change, it is important to understand the degree of human interaction with the natural environment in such protected landscapes as well as their growth potential, of which ecotourism is particularly relevant. As specified earlier, ecotourism is geared to be mutually beneficial towards the promotion of nature conservation and local economic development in order to enhance livelihoods and the wellbeing of local communities.

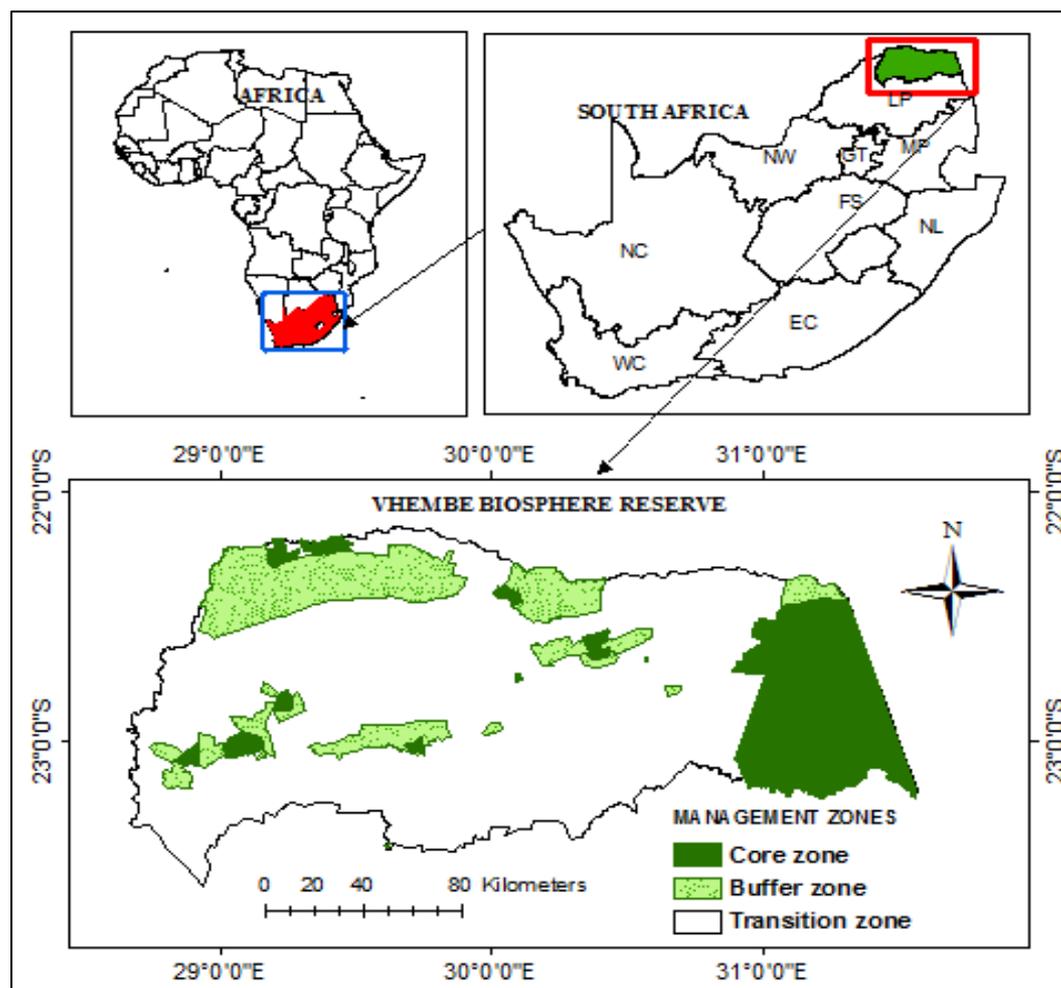
However, for ecotourism to flourish, there is a need for increased levels of satisfaction amongst tourists who visit these destinations as well as an enabling infrastructure to enhance transportation, communications and digital mobility. Improving the comfort level and safety of tourists also enhances their satisfaction (Ghaderi, Saboori & Khoshkam, 2017; Sondakh & Tumbel, 2016). Furthermore, a number of studies have been conducted to explore the relationships between tourist satisfaction and its determinants (Chen, Huang & Petrick, 2016; Ladeira et al., 2016; Jaapar et al., 2017; Chhetri, Arrowsmith & Jackson, 2004). According to Martin et al. (2019), satisfaction is derived from a comparison between the expectations of tourists and the quality of services they receive in their destinations. Therefore, it is crucial to understand tourist satisfaction because it affects the sustainability of tourism businesses and their potential future growth. Even so, satisfaction levels amongst tourists are directly related to their willingness to revisit preferred tourism sites and even recommend them to others (Hultman et al., 2015; Ramseook-Munhurrin, Seebaluck & Naidoo, 2015; Chi & Qu, 2008).

In our exploratory survey, we investigated different aspects of tourism satisfaction in the VBR of South Africa as well as the relationships amongst them. To achieve this research aim, the following objectives were formulated (1) to estimate visitor frequency and willingness to revisit tourism facilities within the VBR, (2) to identify the different reasons for visiting and information sources that were accessed before such visits, and (3) to examine the degree of satisfaction or dissatisfaction amongst tourists.

## **Research methods**

### **Description of study area**

The Vhembe Biosphere Reserve (VBR) (Figure 1) was designated in 2009 to join the World Network of Biosphere Reserves (WNBR). Being located in the northern border of South Africa, in a region known as the Limpopo province [22°07'32" S – 23°34'14" S, 28°39'32" E – 31°33'49" E], this reserve is comprised of an area of about 30701 km<sup>2</sup> forming international boundaries with countries such as Botswana and Zimbabwe in the north-west and Mozambique in the south-east. The reserve houses a population of about 1.4 million people, with the majority relying on jobs in the public service, commercial agriculture, tourism (UNESCO, 2016), as well as home based subsistence agriculture and mining (Mostert & Van Heerden, 2015). The region harbouring the VBR is characterised by a subtropical climate with temperatures as low as 0<sup>0</sup> c in winter and as high as 40<sup>0</sup> c in summer. The natural vegetation is comprised of forest, savannah, and grassland biomes. Most importantly, the abundant biodiversity in this region has twenty-three different vegetation types, eight of which are endemic to this reserve (Van Wyk & Smith, 2001). Within the VBR, there are many environmental and cultural hotspots which form part of the core and buffer zones, some of which include the northern part of the Kruger National Park, the Mapungubwe National Park and the Soutpansberg and Blouberg centres of biodiversity and endemism, Lake Fundudzi, and other private and provincial parks.



**Figure 1.** Map of the Vhembe Biosphere Reserve with outlines of its three main areas.

## Research method

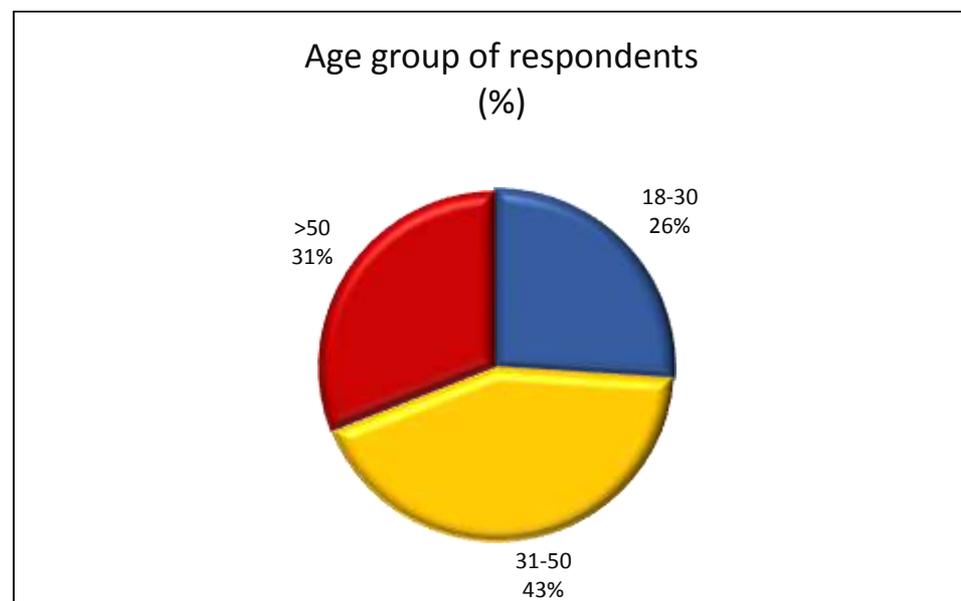
During the June-July 2018 period, an exploratory pilot survey was undertaken to examine some of the aspects of tourism satisfaction amongst selected tourists. This was a small-scale investigation which preceded a larger survey which investigated the various ramifications and sustainability of tourism in the VBR. Fifty (50) respondents who were visiting the different areas of the VBR were randomly selected for interviews. However, relevant ethical protocols in line with the Research Policy of the University of Johannesburg were followed. Adherence to such ethical compliance essentially meant that the purpose and the objectives of the survey were adequately explained to the respondents. Respondents were also duly informed that they were free to participate or not and at any stage they were free to withdraw without incurring any negative consequences to their dignity and wellbeing. Thus, interviews were conducted only when respondents provided their signed prior informed consent. Similarly, their confidentiality and privacy was maintained at all times.

Primary data were collected by means of close-ended questionnaires comprised of several sections. Different sections in the questionnaires included the demographical characteristics of respondents, frequency of visits and willingness to revisit the VBR again, reasons for visiting and information sources on this tourism destination. The degrees of satisfaction about tourism in this region were measured on a 5-point Likert scale. Items on the Tourism Satisfaction Scale (TSS) consisted of satisfaction with the (1) management of parks and wildlife, with (2) hospitality, (3) local communities, (4) publicity and signage, and (5) general satisfaction with the VBR. Primary data collected from the field was stored in the Statistical Package for the Social Sciences (SPSS) spread sheet and were further subjected to descriptive and inferential statistical analyses. The demographic characteristics were presented by means of tables and pie charts while the principal component analysis was used to assess tourist satisfaction features of the five TSS items. The principal component analysis transforms a number of correlated variables into a fewer number of non-correlated variables. The factors produced from such analyses were subsequently used to explain all the correlations between respective variables in order to eliminate redundancy (Hotelling, 1933; Hair et al., 1995).

## Results and Discussion

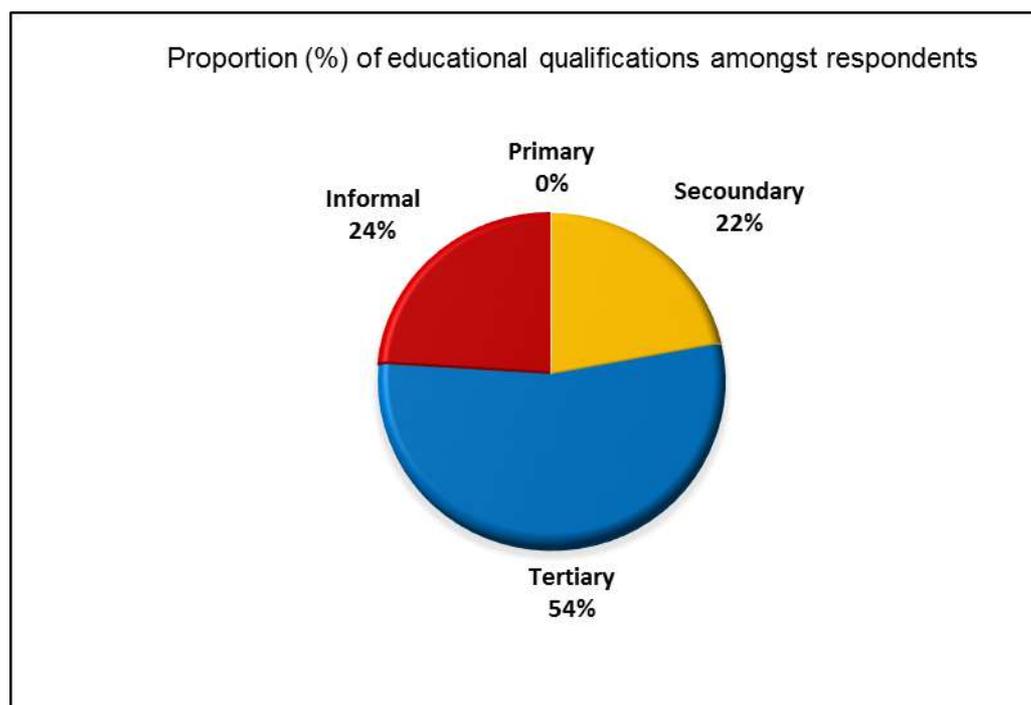
### Demographic characteristics of respondents

From the data analyses we conducted, 58% of the respondents were men while 42% were women. Fifty six percent (56%) of respondents were domestic tourists from South Africa while 44% were international tourists who originated from outside South Africa. In terms of age, the distribution is shown in Figure 2. Forty-three percent (43%) of respondents were between the 31-50 age range, whereas the 18-30 years category was the least (26%) represented age group. By contrast, respondents who were older than 50 years accounted for 31% of the sample.



**Figure 2.** The proportion of respondents based on their ages.

The educational profile of respondents is shown in Figure 3. The majority (54%) completed tertiary educational qualifications while those with non-university qualifications amounted to 24%. On the other hand, only 22% of respondents completed their secondary education.



**Figure 3.** Educational profile of respondents.

Figure 4 shows the marital status of respondents. Whereas the majority of participants were married (40%), 28% were single, 10% were divorced and 14% were widowed while 8% were separated.

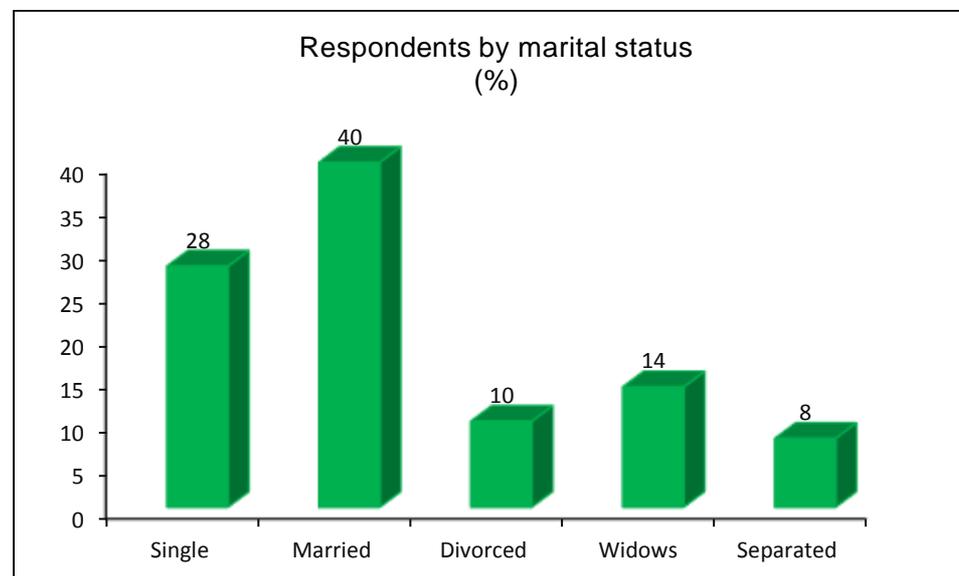


Figure 4. The marital status of respondents.

In Figure 5, the various proportions that characterise respondents based on their occupations are shown. The highest percentage (23%) of respondents was comprised of those who are employed in the public service, thus occupying various administrative and clerical jobs in the provincial and local government sector. This percentage was followed in descending order by respondents who were self-employed in their own businesses such as *spaza* shops (i.e. informal convenience shops), artisan and repair services, and various other informal services such as selling fruits as well as vegetables. The proportion of both students and farmers was equal to 3%.

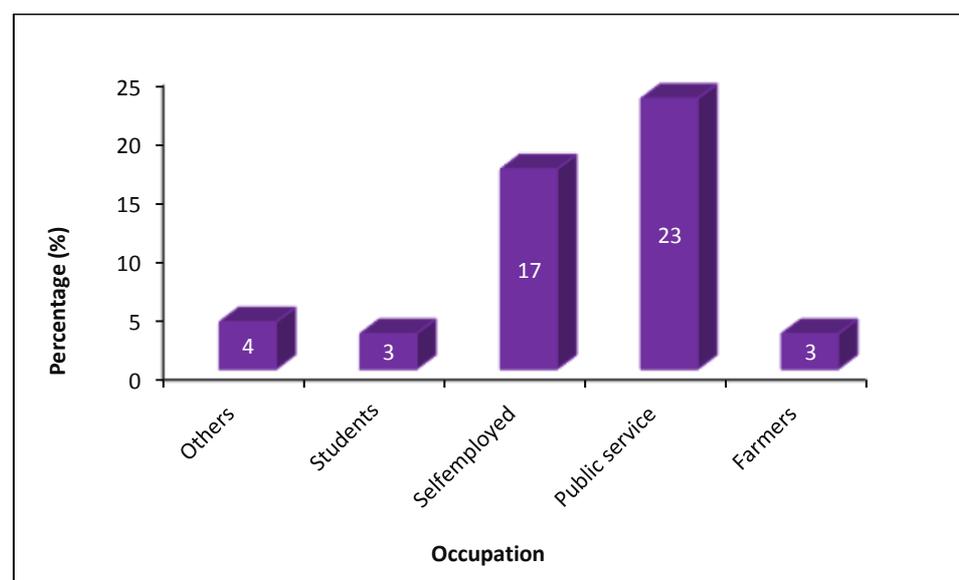
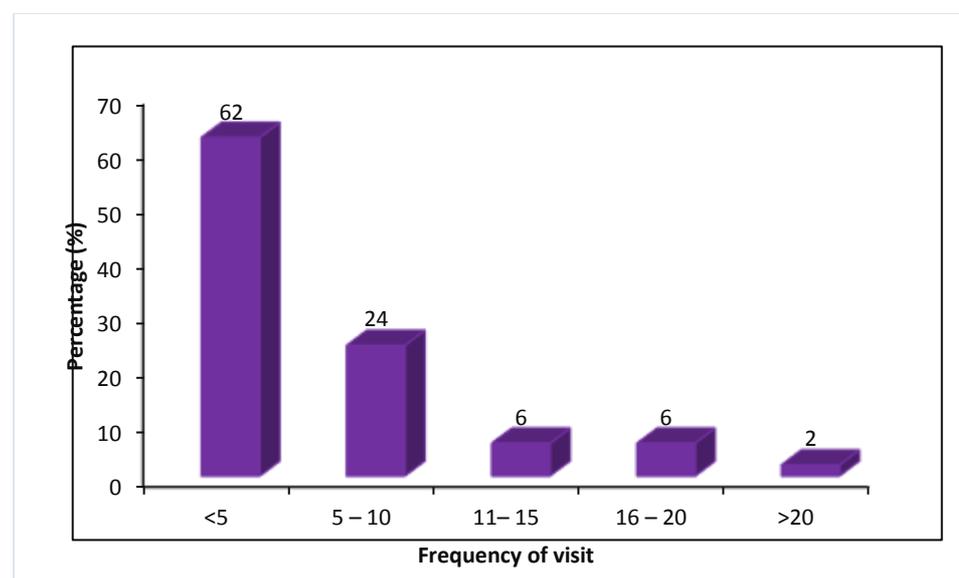


Figure 5. The proportion (%) of respondents according to their occupations.

### Frequency and willingness to revisit

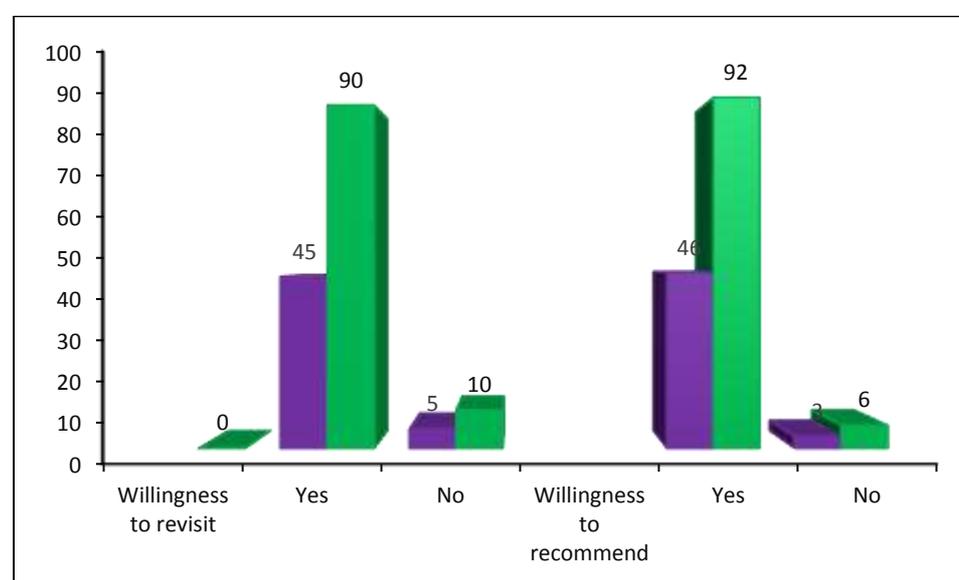
The different frequencies of visits undertaken per year by the respondents are illustrated in Figure 6. The majority (62%) of respondents visit tourist attractions within the VBR nearly five time or less per year while those who visit them about 5-10 times per year is 24%. Thus, higher

frequencies of visits were observed for a comparatively lower proportions of respondents. Although some of the frequencies were less represented in this sample, there is sufficient ground to suggest that respondents who undertake tourism travels and visits within the VBR do so more than once per year. Therefore, tourism is an important lifestyle activity amongst them as they engage in it more than once during the course of a year.



**Figure 6.** The frequencies of visiting the VBR again amongst respondents.

During this exploratory survey, respondents were asked to indicate their choices as to whether or not they will revisit tourism sites in the VBR again and also about recommending their preferred tourism destinations to others. As shown in Figure 7, these proportions were nearly the same. Willingness to revisit and recommend the VBR to others were represented by nearly the same proportions of respondents, 90% and 92%, respectively.



**Figure 7.** Responses (%) according to willingness to revisit again and recommend to others.

These results give an indication of the significance of tourism in the VBR, thus showing potential future growth and the socio-economic impact that this activity can have on local economic development and areas adjacent to the VBR. Furthermore, such willingness to visit the VBR again or recommend it to others they know may be seen as what is known as referential interest. According to Adiguna (2019), referential interest is the “willingness of consumers to recommend the products they have consumed to others”, thus increasing the number of people who may engage in future travels to recommended destinations.



## Reasons for visiting the VBR and information sources

According to Oosthuizen and Ferreira (2019), knowing why people engage in tourism-related travelling to preferred destinations is very important to guarantee and maintain the continued viability of the tourism industry. Table 1 provides a summary of the different reasons why respondents visited the different recreational, cultural and heritage sites within the VBR. The majority (67.2%) of respondents are visiting the VBR for relaxation and for obtaining pleasure. This reason was followed by the role of special events and cultural festivals (15.6%) held in the VBR.

**Table 1.** Different reasons for visiting the VBR according to the respondents.

Reasons for visiting VBR	Percentages (%)
Pleasure and Relaxation	67.2
Religion and Spiritual	3.1
Health	3.1
Research	10.9
Events and Festivals	15.6

Cultural and music festivals can enhance and enrich local tourism experiences because they provide an opportunity to showcase local or indigenous customs and traditions, thus helping to conserve, reinforce and disseminate the heritage value of this protected landscape (i.e. VBR) (Ramukumba, 2019). It is for these reasons that events such as the well-known Marula Festival in the Limpopo province is continuing to attract visitors from near and far who want to experience this rich cultural celebration in a relaxed and peaceful environment away from the big cities. Visiting the VBR for health reasons or attaining wellness and tranquillity in one way or the other was reported by only 3.1% of respondents, thus equal to those who visited the VBR for religious and spiritual purposes. Within the Limpopo province, there are developed and undeveloped geothermal hot water springs that are associated with some healing and therapeutic properties, the most well known in the VBR being (1) Sagole spa, (2) 'Eiland', and (3) Forever Resort Tshipise, amongst others. These sites attracts not only local people within the VBR, but also tourists from other parts of South Africa and overseas for enhancing their wellness apart from recreational uses (Olivier et al., 2008; Tshibalo & Olivier, 2010; Yibas et al., 2011). Furthermore, the existence of sacred forests, lakes, and archaeological sites within the VBR serve as further tourism attractions that draw people to this region every year.

**Table 2.** Different sources of knowledge about the tourist sites within the VBR.

Reasons for visiting VBR	Percentages (%)
Popular media (Radio, TV, internet)	23.8
Family and Friends	38.8
Workplace	12.5
Newspapers	10.0
Meetings and Conferences	15.0

Respondents specified the following sources of knowledge about the various tourist sites that are available within the VBR and the results are provided in Table 2. The most frequently (38.8%) specified source of such knowledge was information received from both family and friends and this was followed by the role of popular media such as radio, television, and the internet (23.8%). Although the popular media in this pilot survey was not the most frequently cited means of information dissemination about the attractiveness of tourism in the VBR, nowadays the role of information sources such as radio and the internet cannot be under-estimated in decision-making. Coupled with the application and exploitation of mobile technologies, the attitudes of tourists can be influenced both negatively and positively (Wang, Park & Fesenmaier, 2012). Information received from workplaces as well as newspapers was mentioned by 10.0% and 12.5% of respondents, thus nearly equal in terms of their importance. The information received from meetings and conferences was mentioned by only 15% of respondents. Given these results, a more successful strategy to popularize and enhance ecotourism in the VBR would be to strengthen its publicity through diverse digital media platforms such as twitter, facebook and instagram rather than traditional methods such as issuing out flyers or relying on recommendations from acquaintances.

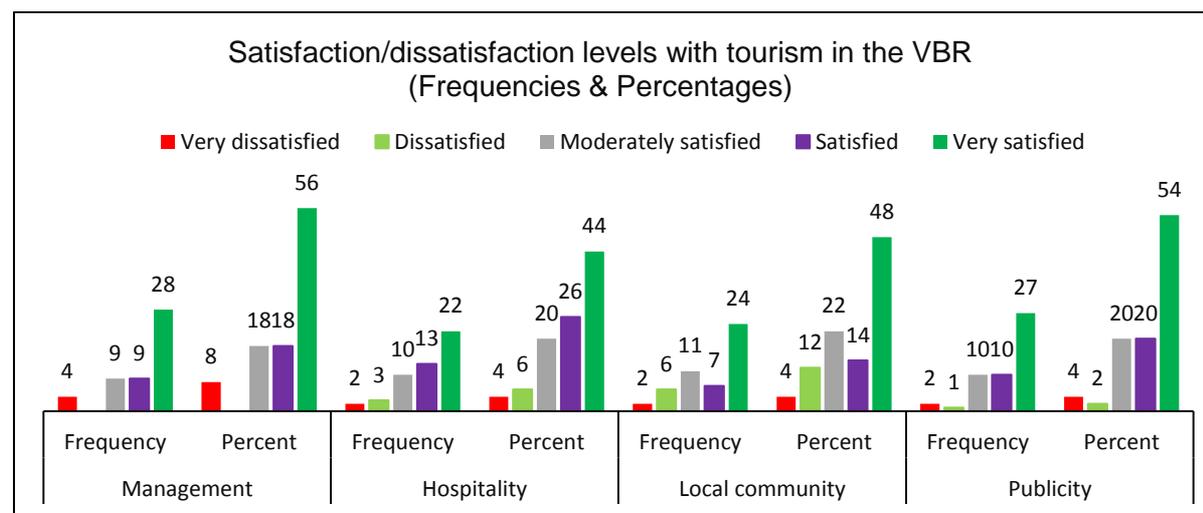
## Determining degrees of satisfaction or dissatisfaction about tourism in the VBR

The internal consistency of our questionnaire exhibited a Cronbach's alpha value of 0.840 (Table 3), which was deemed acceptable for this survey. Figure 8 depicts the results on the satisfaction or dissatisfaction levels expressed by respondents about tourism activities and their experiences in the VBR.

**Table 3.** Internal consistency of the survey questionnaire.

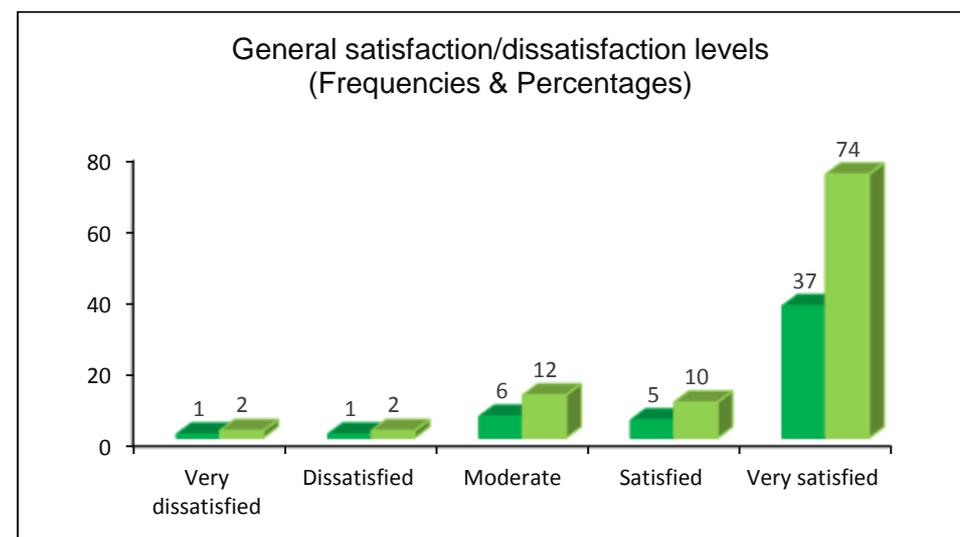
Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Such levels of satisfaction or dissatisfaction were made with reference to the quality of wildlife and tourism management and hospitality services, experiences with local communities, and the information given to publicise tourism in the VBR.



**Figure 8.** Satisfaction and dissatisfaction levels of tourism in the VBR.

To reach different areas in the VBR, tourists rely on information sources such as flyers, maps, and good signage for planning their travelling. For many of these factors, respondents rated them as both satisfactory and highly satisfactory. Such levels of high satisfactoriness and suitability ranged from 44%, 48%, 54% to as high as 56%, for hospitality services, interactions with local communities, efforts towards publicising the VBR as well as existing management practices, respectively.



**Figure 9.** Levels of general satisfaction about tourism in the VBR.



Given these results it is clear that the tourism experiences of the respondents were markedly positive, a factor that would contribute to the continued viability and sustainability of tourism in this biosphere reserve. Moreover, when these results were aggregated together (Figure 9), levels of high satisfaction about tourism in the VBR rose to 74% amongst the respondents while degrees of dissatisfaction decreased significantly.

### Principal component analysis (PCA)

Table 4 represents the correlation between variables that constituted the Tourism Satisfaction Scale (TSS). To validate the use of PCA, we applied the Kaiser-Meyer-Olkin (KMO) (0.781) and Bartlett's Test of Sphericity which showed that the correlation between respective variables are statistically significant ( $X^2 = 96.35$ ,  $df = 10$ ,  $p < 0.001$ ). Using an Eigen value of above 1 (3.086), the Varimax rotation extracted one component which accounted for 62% of the variance observed in the TSS. The underlying characteristics of our TSS features are shown in Table 5. From the PCA, the factor which explained the highest variance (61.7) was found to be tourist satisfaction with management. All TSS items loaded high on the component factor with the highest being general satisfaction towards VBR (0.827). This implies that all other TSS items that were considered in our analyses tended to support general tourism satisfaction within the VBR. Thus, the overall satisfaction of tourists can influence their behaviour after every visit (Chhetri, Arrowsmith & Jackson, 2004).

**Table 4.** The correlation matrix for the Tourist Satisfaction Scale.

Satisfaction	Management	Hospitality	Local communities	Signage and publicity	General satisfaction
Management	1.000				
Hospitality	0.419**	1.000			
Local communities	0.616**	0.465**	1.000		
Publicity and signage	0.369**	0.570**	0.542**	1.000	
General satisfaction	0.585**	0.448**	0.572**	0.614**	1.000

\*\*Correlation is significant at the 0.01 level (2 tailed)

**Table 5.** Underlying characteristics of Tourist Satisfaction Scale.

Satisfaction	Mean	Std. Deviation	Factor loading	Explained variance
Management	4.14	1.212	0.760	61.710
Hospitality	4	1.125	0.729	14.374
Local communities	3.9	1.249	0.819	10.388
Publicity and signage	4.18	1.082	0.790	8.183
General satisfaction	4.52	0.931	0.827	5.344

### Conclusion

As an exploratory pilot survey to a larger study on tourism development and satisfaction in the VBR, this investigation has provided an important set of findings towards a better understanding of the role of tourism in this biosphere reserve. Firstly, the respondents who were aged 31-50 years were the most represented (43%) in the survey and most of them (54%) had achieved tertiary educational qualifications. These respondents were predominantly either married (40%) or single (28%) compared to others within the same group. Furthermore, a relatively higher proportion of respondents were self-employed (17%) or employed in the various administrative and clerical jobs offered in the government sector (23%).

Secondly, visiting the VBR amongst respondents was reported to be happening several times during the course of the year which is indicative of their positive experiences regarding repeated tourism in this protected landscape. Also, willingness to visit the VBR again or recommend this destination to others was confirmed by close to 90% of respondents, thereby revealing the attractiveness of the VBR to tourism and the high



probability of repeat visits. Consequently, precautionary management interventions are necessary to ensure that the carrying and assimilative capacity of this biosphere reserve is not exceeded as there is marked potential for increased tourism.

Thirdly, many reasons for visiting the VBR were specified by respondents, of which the most important ones included seeking pleasure and relaxation (67.2%) and this was followed by positive experiences derived from cultural events and festivals (15.6%) as well as research activities (10.9%).

Fourthly, amongst all factors that may constrain or enhance tourism in the VBR, most respondents indicated that they are very satisfied with existing arrangements, notably for the quality of tourism management in this biosphere reserve and the provision of relevant information in the form of maps, flyers, photographs, and even signage.

Lastly, we found relatively high correlation (0.729 - 0.825) levels between all TSS variables that moderate and determine the general tourist satisfaction in our survey. Given this outcome, there is a high probability that these tourists will return again to the VBR, apart from recommending their positive experiences to others.

#### Acknowledgements

We would like to sincerely acknowledge the funding support received from the University of Johannesburg Commonwealth Scholarship by the first author (Tanre Ibrahim Jauro). We are also grateful for the Prior Informed Consent (PIC) we received from all tourists in the VBR who gave away their time for the questionnaire-administered interviews that we conducted.

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