

Assessment of Visitors' Profiles, Motivation and Awareness of Safety Rules in Zoos in South-Western Nigeria

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ABSTRACT

Different groups of people visit zoos and with various motives with a number of factors motivating them. There are several rules which ensure the safety of visitors within the zoological garden. This study was conducted to evaluate visitors' characteristics, visit motivations as well as their awareness of safety rules and guidelines in three different zoos in Southwestern Nigeria. The zoos were University of Ibadan Zoological Garden, Oyo State, Prof. T.A. Afolayan Wildlife Sanctuary, Federal University of Technology, Akure and Federal University of Agriculture, Abeokuta Zoo Park, Abeokuta. Data were collected using structured questionnaire, which was employed to elicit information from visitors to the zoos. Two hundred (200) visitors were randomly selected from the pool of visitors to the zoos: 100 visitors from University of Ibadan Zoological Garden, 50 visitors from Prof. Afolayan Wildlife Sanctuary and 50 visitors from Federal University of Agriculture, Abeokuta Zoo Park. Data were analyzed using descriptive statistics, Chi-square, one-way analysis of variance (ANOVA) and logistic regression analysis. The results indicated that most of the respondents were males and within the active age group of 21-40 years. The mean and median ages of the visitors were 26 and 24 years respectively. Most of the visitors were motivated to watch zoo animals, with primates being considered the favourite animal. Larger percentages (87%) of the visitors were aware of safety rules and regulations within the zoos. Significant differences existed in the profile of visitors based on education ($p < 0.05$) and income ($p < 0.05$). Furthermore, gender and income were significantly related to visitors' awareness of safety rules in the zoos. It is therefore recommended that zoos adopt effective methods to continually sensitize the visitors and staff about the importance of complying with safety rules and regulations in the zoos.

Key words: Motivation, safety, zoological garden, visitors, awareness

INTRODUCTION

Estimates by the World Association of Zoos and Aquarium reveal that a lot more than 600 million visitors make visits to about 1,200 zoos annually (Holtorf, 2008). According to Hunter-Jones and Haywood (1998), a zoo is a general collection of predominantly wild animals, contained in an area of 110 acres or less, made accessible to human observation. The zoo visiting public includes groups of all ages, educational levels, and diverse social, economic, ethnic and cultural backgrounds (Coe, 1984). Zoos serve as an atmosphere for relaxation and education, for children, youths and adults alike. The existence of zoos thrives on visitors' financial contribution, hence, the need to better understand visitors' motivation towards visiting a zoo (Jordaan and Plessis, 2014). Zoological parks cannot survive over the long term, unless they satisfy the needs of their visitors (Jordan and du Plessis, 2014).

To attract visitors, modern zoo exhibits should be both entertaining and educational (Karanikola *et al.*, 2014). It is worthy of note that visitors' motivations and support wane over time if zoos do not perform up to expectations

(Jordaan and Plessis, 2014). Thus, zoos have to step up their game in ensuring that visitors enjoy their visits and participate in repeat visits.

Proper management of zoological gardens ensures adequate safety of animals, visitors as well as employees within and around animal enclosures. In addition to ensuring animal welfare, exhibits are designed to immerse the viewer in a particular habitat while maintaining a barrier between guests and animals (Hutchins and Smith, 2003). Health and Safety Executive (2012) opined that preventing harm to visitors and preserving human resources is viewed as being cost effective and vital to reduce financial losses and liabilities. Although zoos are generally committed to high standards of welfare, the safety of visitors to the zoo should also be prioritized above all (World Zoo Organization, 1999).

Zoo workers are in closer proximity to animals and are responsible for their care, feeding and maintenance of zoo pens. This however exposes them to various hazards and

risks. Zoo keepers are exposed to the risk of chemical exposure due to anesthetic agents, formaldehyde, pesticides and disinfectants (Hill *et al.*, 2008). Another potential hazard for zoo employees is for those who work with poisonous animals (Vohra *et al.*, 2008). In addition, zoo keepers are prone to zoonosis, which refers to the transfer of diseases from animals to humans and vice versa (National Centre for Zoonosis Research, NCZR, 2012). Using personal protective equipment properly, examining animals on a regular basis and reporting new illnesses and outbreaks to responsible authorities, as well as providing extensive education and training on how to properly handle and care for animals are all important components of limiting zoonotic disease transmission (National Association of State Public Health Veterinarians, 2011). Over the years, there has been little or no research to investigate visitors' perception of safety rules and regulations in zoos (Environmental, Health and Safety Today, 2013) hence, the need for this research to evaluate visitors' characteristics, motivations to visit the zoo, as well as their awareness of safety rules and guidelines in three different zoos in Southwestern Nigeria.

METHODOLOGY

The Study Areas

This study was conducted at three different zoological gardens in the Southwestern part of Nigeria. Data were collected from the University of Ibadan Zoological Garden, Ibadan, Oyo State; Federal University of Agriculture, Abeokuta Zoo Park, Ogun State and Professor Afolayan Wildlife Sanctuary, Federal University of Technology, Akure, Ondo State.

The University of Ibadan Zoological garden, located approximately between latitude $07^{\circ}26'48''N$ and longitude $003^{\circ}53'46''E$, grew from being a teaching and research support for the department of zoology to becoming a full-fledged zoo in 1974 (Adefalu *et al.*, 2014). The zoo supports diverse species of fauna species housed in different sections including the avian, herbivore, carnivore, reptile, primate and small mammals.

Professor Afolayan Wildlife Sanctuary is located within Federal University of Technology, Akure (FUTA), Ondo State. The climate of Ondo State is of the lowland tropical rainforest type, with distinctive wet and dry seasons (Ogunjinmi and Oniya, 2016). The Park is situated between the mini and main campuses of FUTA. The park was founded in 2008 when the department of Ecotourism and Wildlife Management was established in FUTA. The park covers a total area of $8,100\text{ m}^2$ (8.1ha) and found on latitude $005^{\circ} 20'$ North and longitude $07^{\circ} 21'$ East (Oguntuase and Agbelusi, 2013). The Wildlife Sanctuary is exceptional as it consists of animals in both free range

(e.g. kob) and in captivity (e.g. ostrich, baboon, patas monkey, crocodiles, etc.). The park is also dominated with large diversity of rodents, though other families of animal do exist (Oguntuase and Agbelusi, 2013). In addition, the flor species found in the sanctuary include *Ficus capensis*, *Elais guinensis*, *Milicia excelsia*, *Spondias mombin*, *Newbouldia laevis* (Oguntuase and Agbelusi, 2013).

The Federal University of Agriculture, Abeokuta Zoo Park which happens to be the first zoo in Ogun State, sits on a 62 hectare of land located 200 metres away from the main gate of Federal University of Agriculture, Abeokuta. The zoo park was established in the year 2012 in a conserved forest that is about 200 meters away from the main gate of the University (Adedipe *et al.*, 2015). The park is found on latitude $07^{\circ}13'46''N$, and longitude $003^{\circ}26'22''E$. The zoo became open to visitors in 2010 (Yisau *et al.*, 2013). The vegetation is a typical derived savannah and the zoo houses different fauna species such as antelopes, jackals, hyenas, monkeys, birds and reptiles.

Sample, Survey Procedure, Measurement and Analyses

The population for the study comprised the visitors to three zoos in Southern Nigeria. The respondents were randomly selected from the pool of visitors. 100 respondents were sampled from University of Ibadan Zoological Garden, Ibadan, Oyo State; 50 respondents from Professor Afolayan Wildlife Sanctuary, Federal University of Technology, Akure, Ondo State and 50 respondents from Federal University of Agriculture, Abeokuta Zoo Park, Ogun State.

The data were collected using self-administered structured questionnaire. All the questionnaires were retrieved. The questionnaire was divided into three sections comprising of the demographic characteristics of the respondents, factors that motivate zoo visitation and visitors' awareness of safety rules and guidelines in zoos.

The independent variables were the visitors' profile which consists of gender, age, marital status, income, level of education, religion, occupation, income, place of residence, and nationality. Gender was measured as male=1, female=2. Age was measured in years. Marital status was measured as single=1, married=2, divorced=3, widower/widow=4. Level of education was measured as primary=1, secondary=2, tertiary=3. Religion was measured as Christianity=1, Islam=2, Traditionalist=3. Occupation was measured as civil servant=1, self-employed=2, student=3, private sector=4, unemployed=5. Income was measured in naira (₦). Place of residence was measured as within Ibadan, Akure and Abeokuta=1, outside Ibadan, Akure and Abeokuta=2, within southwest Nigeria=3, within Nigeria=4, outside Nigeria=5.

Nationality was measured as Nigeria=1 Foreigner=2. The dependent variables were visitors' motivation to visit the zoo and awareness of safety rules and guidelines in zoos.

The descriptive statistical tools employed for data analysis were mean, median, frequencies, percentages and standard deviation while the inferential statistical tools were Chi-square, one-way ANOVA and logistic regression analysis.

RESULTS AND DISCUSSION

Table 1 reveals the demographic characteristics of the zoos. The result showed that there were more male visitors than females in all the three zoos. This is consistent with the findings of Dutta (2005) who reported that 64% of the visitors to the Peshwe Zoo are males. However, Karanikola et al. (2014) reported more females (50.9%) visiting the zoo of Thessaloniki, Greece. A considerable percentage of the visitors (60.5%) were within the age group of 21-40 years, indicating that the visitors are predominantly youths who are well within their active age.

Table 1: Demographic characteristics of visitors

Zoo Demographic Factors	University of Ibadan Zoological Garden (N=100)		Prof. T.A. Afolayan Wildlife Sanctuary (N=50)		FUNAAB Zoo Park (N=50)	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Gender				52		
Male	53	53	26		32	64
Female	47	47	24	48	18	36
Age						
≤ 20	32	32	6	12	24	48
21-40	61	61	40	80	20	40
41-60	7	7	4	8	6	12
Mean	25.52		28.56		25.14	
Median	23		27		21	
Marital status						
Single	75	75	35	70	38	76
Married	25	25	14	28	10	20
Divorced	-	-	1	2	2	4
Level of education						
Primary	1	1	1	2	-	4
Secondary	17	17	1	2	2	4
Tertiary	82	82	48	96	48	96
Religion						
Christianity	76	76	34	68	31	62
Islam	24	24	14	28	19	38
Traditionalist	-	-	2	4	-	-
Occupation						
Civil servant	13	13	4	8	8	16
Self employed	16	16	17	34	3	6
Student	64	64	22	44	36	72
Private sector	6	6	5	10	3	6
Unemployed	1	1	2	4	-	-
Income (₦)						
0-40,000	79	79	35	70	17	34
40,001-80,000	15	15	11	22	18	36
80,001-120,000	6	6	1	2	14	28
> 120,000	-	-	3	6	1	2
Nationality						
Nigerian	100	100	49	98	50	100
Ghanaian	-	-	1	2	-	-

The average mean age of all the visitors was 26.4 years while the average median age of 23.6 years was higher than the estimated median age (18.3 years) for Nigeria (Central Intelligence Agency, 2017). Furthermore, majority of the visitors were single. In contrast, Dutta (2005) indicated that most of the visitors to the National Zoo in South Africa are married. Also, a very high proportion of the visitors had tertiary education. This implies that the educated are aware of the importance of zoos and are willing to visit. In addition, the more educated people are more interested in recreation activities and as such, willing to pay to achieve this. Larger percentages of the visitors (70.5%) were Christians, 28.5% and 2% of the visitors practiced Islam and traditional religion respectively. This signifies that majority of the visitors to these zoos are Christians. However, this contradicts the CIA (2016) estimates for Nigeria of 50% Islam, 40% Christianity and 10% Indigenous beliefs. About 61% of the visitors were students; this signifies the high level of literacy among the visitors. This can be attributed to youths being energetic and fun-loving. Majority of the visitors earn an income of ₦40, 000 and below. This could be attributed to the fact that students constituted a largest percentage of the visitors whose source of livelihood consists majorly of stipends given at home. In addition 99.5% of the respondents were Nigerians while 63.5% of the visitors reside in cities where the respective zoos are located, 25%, 22.5% and 13.5% of the respondents hail from Oyo state, Ogun state and Ondo state respectively. This reveals that close proximity to the zoos is a factor to be considered in visitors' choice in visiting a zoo. The ratio of local visitors to foreigners was 95:0.5; this might be due to the locations of the zoos, which is Nigeria.

A high percentage indicates a high importance attached to a specific motive by zoo visitors. The visitors stated that watching zoo animals and having fun were the most important motives for visiting the zoo (Table 2). Another

significant purpose of visiting the zoos by respondents was to learn more about the animals. The results of this study support the findings of Dutta (2005) where 80% of the people visited the zoo for recreation and tourism purposes. However, in the studies carried out by Jordaan and Plessis (2014), visitors revealed that “to spend some quality time with others in their groups” was the most important motivation factor for visiting the zoo.

Table 2: Motives for zoo visitation

Motive	Percentage (%)
To watch the animals	26
To have fun	25
To learn more about the animals	20
To Socialize	14

Table 3 presents the factors considered by visitors in visiting the zoo as well as the level of importance attached to these factors. These factors were rated as extremely important, very important, important, less important and not applicable. The result shows that 39.5% and 31% of the visitors rated “to know more about the natural history of the wild animals” as extremely important and very important, respectively. This shows the visitors' willingness and readiness to learn more about wild animals and their environment rather than relaxation alone. The results on Figure 1 shows that majority of the visitors do not visit the zoo alone. They visit the zoo with friends and relatives (28.5%), family members (27.5%), a group or a spouse. This reveals that the zoo experience may be better enjoyed in groups or with partner(s) with resulting experiences shared as they go on with the zoo tour. This agrees with the findings of Dutta (2005) indicating that most of the visitors to the Peshwe Zoo in Pune came in groups, an average of 5.47 persons.

Table 3: Level of Importance placed on zoo visitation in the three zoos

Factors	Extremely Important (%)	Very Important (%)	Important (%)	Less Important (%)	Not Applicable/Does not matter (%)
To know more on the natural history of wild animals	39.5	31	21.5	7	1
To know what Animals looks like	34	31	25.5	7	2.5
To learn how to behave around wild animals	22.5	28.5	38.5	6	4.5
Proximity to residence	16	24.5	23	23	13.5
To care for Animals	14	29	32.5	15.5	9
To learn about zoo conservation program	26	29	16.5	21.5	7
Arrays of animals on display in zoo	21	31.5	32.5	7	8

Table 4: Visitors' satisfaction with safety measures by zoo management

Safety measures	Very high (%)	High (%)	Average (%)	Low (%)	Very low (%)
Warning signs for visitors	35	30.5	20.5	11.5	2.5
Tour guide	25.5	29.5	21.5	14.5	9
Safety orientation/tips for visitors	27	32.5	17	14	9.5
Crowd control	19.5	29.5	29	11.5	10.5

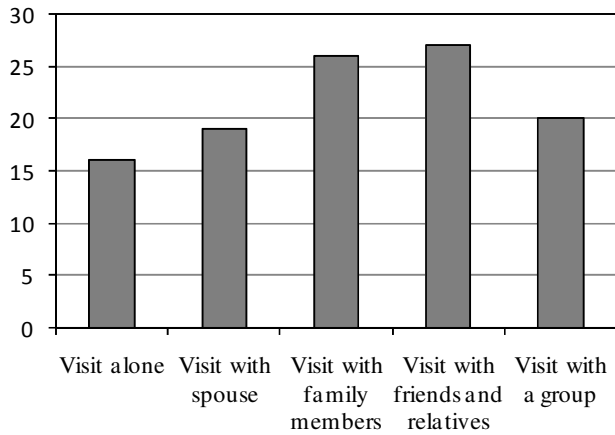


Figure 1: Mode of visit to the zoos

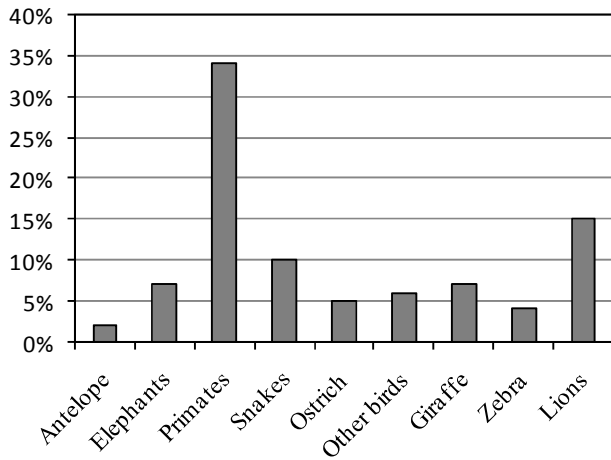


Figure 2: The types of animals visitors like to watch while visiting

This is also consistent with the findings of Puan and Zakaria (2007) that reported that 61% of the respondents went to the zoo with their families in their study.

Primates and lions were found to be the most favourite animal by the visitors to the zoos (Figure 2). This finding supports the report of Martin (2000) which asserts that the most popular zoo animals are the primates.

Figure 3 indicates that most of the visitors (87%) were aware of the safety rules and guidelines in zoos while 13% indicated their non-awareness. This shows that there was a high level of safety literacy amongst the visitors. This might be because majority of the visitors are educated.

The visitors' were satisfied with safety measures put in place in the zoos include including constant warning signages, tour guide, safety tips and crowd management. Visitors were most satisfied with the warning signage made available around the zoo by the zoo management (Table 4). This was followed by guided tours, safety orientation for visitors and crowd control.

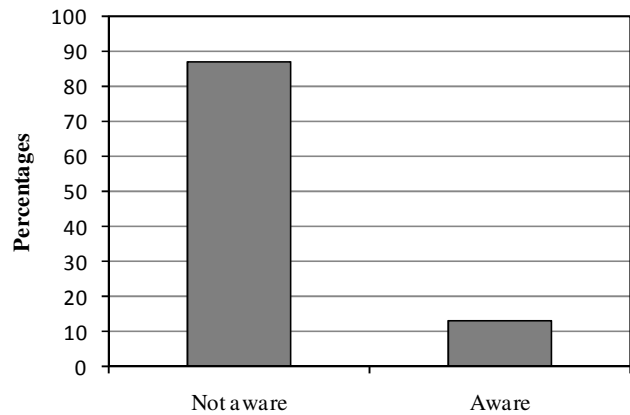


Figure 3: Visitors' Awareness of safety rules and guidelines in zoos

Significant differences ($p < 0.05$) existed in the education and income ($p < 0.05$) of visitors to the zoos (Table 5). Turkey's HSD revealed that visitors to Federal University of Agriculture, Abeokuta Zoo Park (mean=2.96) had significantly higher education while those of University of Ibadan (mean=2.81) had significantly lower education. Visitors to Prof T.A. Afolayan Wildlife Sanctuary (mean=~~N~~44,680) earned significantly higher income while the income of visitors to University of Ibadan (mean=~~N~~22,090) were significantly lower.

Significant difference was observed in visitors' awareness of safety rules ($p < 0.05$) and the time of zoo visitation ($p < 0.01$) (Table 6). Turkey's HSD showed that the mean of visitors' awareness of safety rules in University of

Ibadan zoo (mean=1.20) was significantly higher while those of Federal University of Agriculture, Abeokuta Zoo Park was significantly lower (mean=1.02).

Table 5: Demographic differences among visitors to the three zoos

Factors	F	Sig. Level
Gender	0.977	0.378
Age	2.324	0.101
Marital status	0.356	0.701
Education	4.041	0.019*
Religion	1.849	0.16
Occupation	0.014	0.986
Income	3.936	0.021*
Nationality	1.508	0.224

This can be explained with the fact that the University of Ibadan zoological garden has long been established before the other zoos and so, have put in place various strategies to make visitors aware of safety rules within the zoos. In addition, time of visitation was significantly higher for visitors to University of Ibadan zoo (mean=1.94) while that of visitors to Federal University of Technology, Akure (mean=1.36) was significantly lower. This result is also evident of the long-term establishment of the zoo, thus, the management have been able to incorporate various attractions (animals, picnic spots, conveniences, etc) to pull a large number of visitors.

Table 6: Differences in visitors' motivation for zoo visitation, awareness of safety rules in zoos and trip characteristics for the three zoos

Factors	F	Sig. Level
Motivation	2.28	0.105
Awareness	4.407	0.013*
Visitation status	1.566	0.211
Frequency of visit	0.884	0.415
Time of visit	8.91	0.000**

The coefficients of the parameters for logistic regression analysis (Table 7) reveals that there were statistical relationships ($p < 0.01$) between awareness of safety rules in zoos and gender and Income. The likelihood ratio test indicates that the logistic regression model is significant with Chi-square statistics of 86.92. This shows that the demographic factors of the respondents were significantly related to their awareness of safety rules in the three zoos. Furthermore, the model predictions are correct at 90%, this shows that the explanatory variables can be used to specify awareness of safety rules with a high degree of accuracy. Gender ($p < 0.01$) and Income ($p < 0.01$) are statistically significant with awareness of safety rules. The final model fit revealed that 55% of the variation in the awareness of safety rules is explained by the logistic models indicating a strong relationship between the predictors and the predictions.

Table 7: Demographic and trip characteristics as predictors of visitors' awareness of safety rules in the three zoos

Variables	B	SE	Wald	Sig.	Exp (B)
Gender	-2.11	0.85	6.08	0.01*	0.12
Age	14.65	56841.51	8.73	1	2310121.9
Marital status	-5.41	28102.21	0.63	0.73	
Education	26.44	23604.92	2.15	0.34	
Religion	20.44	53878.41	0.55	0.76	
Occupation	-19.607	40192.87	7.2	0.13	
Income	0	0	6.13	0.01*	1
Nationality	-14.11	40193.09	0	1	
Visitation status	-6.9	42881.05	0.71	0.7	
Frequency of visit	-0.63	1.18	1.57	0.96	
Time of visit	21.13	10883.67	0.26	0.97	
Motivation	0.04	0.33	0.01	0.9	1.04
Constant	1.86	0.21	80.58	0.00*	6.41
Correct Prediction	90.00%				
Final Model Fit					
-2 log-Likelihood	86.92				
Nagelkerke R Square	0.55				

CONCLUSION

Since the influx of visitors to zoos is pertinent to the smooth administration and sustainability of the zoos, it is necessary to examine the characteristics of visitors and their motivations to visit the zoo. Watching zoo animals is a motivation for visitors to visit the zoo. In addition, majority of the visitors do not visit the zoo alone, they do so in groups with friends, relatives or spouses. The education and income profiles of visitors to the different zoos were significantly different. Furthermore, awareness of safety rules was found to be high among the visitors to the three zoos while visitors to the University of Ibadan zoological garden had the highest level of awareness. Time of visit to zoos was also found to be significantly different between the zoos, with visit to the University of Ibadan zoological garden being the highest. It is therefore recommended that zoos adopt effective methods to continually sensitize the visitors and staff about the importance of complying with safety rules and regulations in the zoos.

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