

A NON PARAMETRIC ANALYSIS OF THE PERCEPTION OF TOURISTS ABOUT GOA

NIKHIL VIJAY

Bits-Pilani, Goa Campus, Zuarinagar, Goa,
Email: nikhilv992@gmail.com

Dr. PINKY PAWASKAR

Bits-Pilani, Goa Campus, Zuarinagar,
Goa, Email: pinkyp@Goa.bits-pilani.ac.in

ABSTRACT

It is Important for any governing body of a particular Tourist destination to be aware about the perception of Tourists about that place and what drives them towards visiting, revisiting and recommending that place to others, so that the important areas of tourist attractions can be identified and a focused approach can be adopted towards the development of those particular areas as first priority.

This research paper helps to gauge the perception of tourists towards the state of Goa which is a major tourist destination in India. For this purpose, a non-parametric analysis has been conducted on data gathered from Questionnaires circulated among Tourists describing their perception about Goa from among the following variables namely fun, relax, Alcohol and other intoxicants, Foreigners, Freedom, Breaking Taboo etc.

As a result of our analysis we have concluded that overall there is a positive perception of Goa among the tourists and they prefer to visit the place for Relaxation purposes and also for enjoying the scenic beauty of the place.

This analysis has been done so that policymakers along with all the stakeholders in tourism industry in Goa are aware of what the tourists are looking for and what they expect from Goa.

This will help in devising tourism policies in Goa in the long run and will ultimately lead to better tourist satisfaction and hence growth of the tourism industry in Goa.

Keywords: Non Parametric tests, Friedman Test, Kendall's W Test, Cochran Q test, Perception.

INTRODUCTION

In case of Tourism management, the image and perception of Tourists about a particular destination is an important factor deciding the demographics of tourists visiting that particular place. Thereby recognizing the image associated with a particular destination is of utmost important in order to effectively devise and implement strategies that would maximize the satisfaction of tourists and hence would increase the probability of revisits or positive recommendations by them.

Goa is a major Tourist destination in India and with nearly 6 million tourists visiting each year. Goan economy is majorly dependent on these tourists and hence Tourism is a major sector having widespread effects on the overall growth and development of the State of Goa.

Thereby tourism management studies focusing on identifying the major perception of Tourists regarding Goa is important. This paper intends to do the same using non parametric tests implemented on ordinal data collected by circulating questionnaires among tourists belonging to various age groups and genders.

Non-parametric test have been proved to give better results on small samples as used in this study(370) and also since the data used is ordinal which cannot be characterized by any

distributions makes use of non-parametric tests more indispensable as parametric tests cannot be used to analyze such datasets.

II. Data Collection

Data was collected by floating a questionnaire among 370 participants.

The questionnaire prepared for survey focused on three major attributes namely:

- 1 Demographic profile of the respondents
- 2 Perception of Tourists about Goa
- 3 Revisit and Recommend component.

The demographic profile of the respondents was broken down into 5 age categories i.e 15-23, 24-31, 32-39, 40-47, 48-80 besides two gender choices namely male and female.

A list of perception attributes was compiled through literature review on tourist perception and consumer behavior in tourism as indicated in Table above. The respondents were asked to assess their perception of Goa from the 7 given perceptions when considering a leisure travel holiday in general, using a five-point Likert-type scale; ranging from not important (5) to extremely important (1). The respondents were then asked to rate their level of satisfaction on the same 19 attributes considering their experience in Goa using a five-point Likert-type scale; ranging from worse than expected (5) to surpassed expectations (1).

Table 1 Various Perceptions of Goa

-
- a Relax
 - b Alcohol and Intoxicants
 - c Scenic beauty
 - d Foreigners
 - e Freedom
 - f Breaking Taboo
 - g Fun
-

The survey concluded with post-visit questions on their intent to visit Goa again and the probability of their referring Goa to friends and family.

III. LITERATURE REVIEW

Lots of research has already been conducted on the area of Consumer Behavior but the complexity of the subject makes it extremely difficult to cover every dimension of human behavior. Tourism consumer behaviour can be defined as the ensemble of its acts, attitudes and decisions regarding choosing, buying and consuming tourism products and services, and also its post-consuming reactions (Fratu, 2011).

Shaw and Williams (2002) added that the understanding of tourist motivation and decision-making process are the key to strong economic considerations as it relates to promotion of tourism and tourism planning. Travel motivation has been investigated by many researchers

from different fields such as sociology, anthropology, and psychology (Cohen, 1972; Dann, 1977; Crompton, 1979; Gnoth, 1997).

Tourism paradigm is related to human beings and human nature, it is always a complex proposition (and cannot always be quantified) to investigate why people travel and what they want to enjoy (Yoon and Uysal, 2005) and it is because of this most of the parametric tests are not applicable when it comes to issues related to tourism management and hence we need to use non parametric analysis in order to analyze issues related to fields like Tourism.

(L.Don.Lehmkuhl, P. F., 1994) discussed the basic characteristics of nonparametric tests like Kendall's Correlation Test and contrasted it with that of parametric tests. The author analyses different kinds of non-parametric Tests, their advantages and disadvantages and the cases when non-parametric tests should be used instead of the parametric one.

(Fagerland, M. W. 2012): explored the use of non-parametric tests at the expense of t-test and depicted it's consequences. For smaller sample sizes non-parametric tests were found to be more useful. Using non-parametric tests in large studies may provide misleading and confusing answers. For studies with a large sample size, t-tests and their corresponding confidence intervals can and should be used even for heavily skewed data.

Research Gaps: Not many research studies have been conducted on behavioral aspects of tourism management by trying to gauge the perception of Tourists with respect to Goa, and the ones which have been conducted lacked extensive statistical research as the one depicted in this research paper.

Objectives:

1. To determine if there is a significant difference among the various perceptions (fun, beauty, relax, freedom, breaking taboo, foreigners, alcohol and intoxicants) of Goa across tourists belonging to different age groups.
2. To determine the nature of outlook of tourists about Goa (positive or negative) and also to determine the major tourist attraction which compels tourists to revisit Goa.

IV. Methodology

Data collected through questionnaire was ordinal data and hence parametric tests cannot be used to analyze such data , thereby non parametric tests were conducted for it's analysis.

In order to determine whether there exist a significant difference among the various perceptions or not various tests like Friedman Test, Cochran Q Test, and Kendall's W Test were conducted using SPSS.

Where as pivot tables were used in MS Excel to analyze the dominant perception among the different age groups.(categorical analysis)

We have used an ordinal scale data here where we have tried to divide the total perception of tourists in two extremes +ve and -ve .Based upon categorization of their responses in seven different reasons to visit Goa.

To conduct a non-parametric test the following steps are followed:

1-Level of significance is selected $\alpha=0.05$ in our case.

2-Setting up research hypothesis (Null and alternative hypothesis are mentioned along with their respective test description to give a clear picture)

3- Select a test statistic, in non-parametric tests the observed data is converted into ranks and then the ranks are summarized into a test statistic.

4-Devise a decision rule: reject H_0 if p -value of test $< \alpha$.

V. Design

Design : Non-parametric tests of K-related samples – namely Friedman test, Kendall's W test, Cochran test are performed to reach conclusions.

Friedman Test

It is a non-parametric method to test for differences between groups when the dependent variable being measured is ordinal.

The corresponding Hypothesis for Friedman test are as follows:

H_0 :The difference among the various perception=0.

H_a :The difference among the various perception \neq 0

Assumptions :

- **One group** that is measured on **three or more different occasions**.
- Group is a random sample from the population.
- One dependent variable that is either **ordinal, interval** or **ratio**
- Samples do **NOT need to be normally distributed**.

Note: Non-parametric tests are a comparison of medians whereas parametric tests are generally comparisons of means.

Kendall's W Test:

Kendall's W is a non-parametric statistic. It is a normalization of the statistic of the Friedman test, and can be used for assessing agreement among raters. Kendall's W ranges from 0 (no agreement) to 1 (complete agreement).

Cochran Q Test

In this test the response variable can take only two possible outcomes (coded as 0 or failure and 1 or success) It is a non-parametric statistical test used to assess if different observers of the same phenomenon have consistent results amongst themselves. (inter observer variability). (Cochran, 1950)¹

The corresponding hypothesis are as follows:

H_0 : There is no difference between number of tourists having a particular perception with those of not having that perception.

H_a : There is a difference between number of tourists having a particular perception with those of not having that perception

VI. Calculations & Inferences

Friedman Test

Table 2.1 Ranks

	Mean Rank
Fun	4.50
Beauty	4.43
BreakingTaboo	3.23
Relax	5.15
Alcohol & Intoxicants	3.60
Freedom	3.77
Foreigners	3.32

Source: SPSS

Table 2.2

Test Statistics^a

N	400
Chi-Square	484.149
Df	6
Asymp. Sig.	.000

a. **Friedman Test**

b. **Source: SPSS**

Inference of Friedman Test:

p-value value which is denoted asymptotic significance (0.00) is less than alpha (0.05) so H_0 is rejected and we can say that there are difference among tourists regarding various perceptions of Goa. Also the perception which maximum people have about Goa is relaxation as indicated by Mean rank table given above .

Kendall's W Test

Table 2.1

Ranks

	Mean Rank
Fun	4.50
Beauty	4.43
BreakingTaboo	3.23
Relax	5.15
Alcohol	3.60
Intoxicants	
Freedom	3.77
Foreigners	3.32

Source: SPSS

Table 2.2

Test Statistics

N	400
Kendall's W ^a	.202
Chi-Square	484.149
Df	6
Asymp. Sig.	.000

- a. **Kendall's
Coefficient of
Concordance**
b. **Source: SPSS**

Inferences of Kendall's W test

The coefficient of concordance being close to zero (.202) indicates lesser degree of unanimity among the raters. Therefore, it is advisable for the government not to keep aside other factors besides the most rated factor while Devising policies for tourism in Goa as other factors though may not be as significant as the most rated one but cannot be absolutely ignored also.

Cochran Q Test

Table3.1

Frequencies

	Value	
	0	1
0Fun	230	170
Beauty	238	162
BreakingTaboo	375	25
Relax	155	245
AlcoholIntoxicants	333	67
Freedom	313	87
Foreigners	364	36

Source: SPSS

Table 3.2

Test Statistics

N	400
Cochran's Q	4.841E2 ^a
Df	6
Asymp. Sig.	.000

a-0 is treated as a success b-

Source: SPSS.

Inferences-Cochran Q test

p-value (0.00) denoted by asymptotic significance of test is less than alpha(0.05) therefore we reject the null hypothesis H_0 and hence there is significant difference between number of tourists having a particular perception with those of not having that perception which indicates that the opinions of the tourists are not equally distributed but vary from perception to perception for e.g. from table 3.1 it is clearly visible that in case of Breaking Taboo only 25 people out of 400 hundred selected it as one of their perceptions about Goa and the rest

375 people didn't select it which clearly indicates a unequal distribution of opinions for a particular perception.

Row Labels	Sum of fun	Sum of beauty	Sum of relax	Sum of Freedom	Sum of breaking taboo	Sum of foreigners	Sum of Alcohol and Intoxicants	Sum of Recommend	Sum of Revisit
15	1	0	1	0	0	0	0	3	2
17	0	0	3	0	0	0	0	6	4
18	0	0	1	0	1	0	0	3	1
19	0	0	0	0	0	0	1	5	5
20	3	4	4	0	0	0	2	16	17
21	8	7	12	5	1	0	2	38	37
22	6	7	6	3	3	0	0	20	22
23	11	15	15	5	0	4	3	53	62
Grand Total	29	33	42	13	5	4	8	144	150

Source: Data collected through Survey.

Fun was the only such parameter which was selected by almost half of the population and rejected by the other half. Relax was chosen by the maximum number of tourists as there perception about Goa, which also matches with the results given by Friedman's test.

Inferences: Pivot Tables

Results from Pivot tables (in Excel) categorizing the perception of individuals according to different age groups. **Table-4 representing tourists perception from age group 15 to 23**

Result: Maximum tourists of a young age group of 15-23 come to Goa to Relax and thereby would definitely feel the need to revisit the place.

Table-5 representing tourist perception from age group 24 to 31.

Row Labels	Sum of fun	Sum of beauty	Sum of relax	Sum of Freedom	Sum of breaking taboo	Sum of foreigners	Sum of Alcohol and Intoxicants	Sum of Recommend	Sum of Revisit
24	10	12	14	8	2	0	6	36	45
25	2	8	12	5	1	0	2	39	42
26	7	7	9	4	0	2	3	31	41
27	4	7	7	2	0	0	4	27	37
28	15	17	25	8	0	4	7	64	72
29	7	8	10	3	0	2	3	26	36

30	11		11		12	3	1	0	3	29		33
31	6		3		10	2	1	1	1	20		20
Grand Total	62		73		99	35	5	9	29	272		326

Source: Data collected through Survey.

Result: Maximum number of tourists of age between 24-31 visit Goa to relax and enjoy the overall beauty of the place and they would like to revisit Goa. Also note the age group of 24-28 has shown maximum number of people among the other age group, who are interested to visit Goa for the purpose of alcohol and intoxicants and also to experience freedom.

Table-6 representing tourist perception from age group 32 to 39

Row Labels	Sum of fun	Sum of beauty	Sum of relax	Sum of breaking Freedom	Sum of taboo	Sum of Alcohol and foreigners	Sum of Intoxicants	Sum of Recommend	Sum of Revisit	
32	13	7	13	7	4	3	3	46		52
33	5	3	6	4	2	2	2	14		22
34	3	2	11	6	2	2	3	36		43
35	7	7	10	3	2	3	2	33		27
36	8	3	8	1	0	0	1	24		28
37	2	2	4	1	0	0	0	11		17
38	7	5	5	1	0	4	2	27		35
39	2	3	4	2	0	1	2	7		12
Grand Total	47	32	61	25	10	15	15	198		236

Source: Data collected through Survey.

Results: Maximum number of tourists of age group between 32-39 would like to visit Goa to Relax and would also prefer to revisit the place then only recommending it. The age group of 32-39 also has a quite good representation of people that associate visiting Goa by Breaking Taboo.

Table-7 representing tourist perception from age group 40 to 47.

Row Labels	Sum of fun	Sum of beauty Revisit	Sum of relax	Sum of Freedom	Sum of breaking taboo	Sum of foreigners	Sum of Alcohol and Intoxicants	Sum of Recommend	Sum of
40	3		5	6	3	3	2	2	13
41	0		1	1	0	0	0	0	1
42	8		4	8	2	0	1	3	24
43	3		1	4	1	0	1	1	18
44	1		1	4	0	0	1	0	7
45	0		2	2	0	0	0	1	8
46	2		1	1	1	0	0	0	4
47	2		2	3	1	0	0	0	6
Grand Total	19		17	29	8	3	5	7	81

Source: Data collected through Survey.

Results: As indicated in other age groups the perception of people in the age group of 40-47, is also about relax with regards to visiting Goa. And they also like their peers would prefer to revisit the place. However the difference between the number of people that would like to revisit and that would like to only recommend has fallen in this age group as compared to the other ones.

Table-8 representing tourist perception from age group 48 to 80.

Row Labels	Sum of fun	Sum of beauty	Sum of relax	Sum of Freedom	Sum of breaking taboo	Sum of foreigners	Sum of Alcohol and Intoxicants	Sum of Recommend	Sum of Revisit
48	3	1	4	1	0	0	2	11	15
49	2	3	3	1	0	1	1	8	9
50	1	0	0	0	1	0	0	1	2
51	1	0	1	0	0	1	1	2	4
52	0	0	1	0	0	0	1	7	8
53	1	1	2	1	0	1	1	7	5

56	1	1	1	0	1	0	0	2	2
58	1	1	1	1	0	0	1	4	4
59	1	0	0	1	0	0	1	3	4
60	1	0	0	0	0	0	0	2	2
80	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	3	2
Grand Total	13	7	14	6	2	3	8	57	50

Source: Data collected through Survey.

Results: Surprisingly the people who are among the oldest of the lot have given a lot more emphasis on fun as compared to their other counterparts. This age group has regarded Relax and Fun almost equally as their main perception about Goa. As contrary to other age groups, this age group is also of the opinion to visit the place only once and recommending it to others rather than visiting Goa again and again

CONCLUSIONS

From the previously done analysis we can easily conclude that overall there is a positive perception of Goa among all age groups contrary to what is generally assumed. Almost all the tourists of all age groups be it teenagers, youngsters, middle aged persons and elderly come to Goa to relax, have fun (in the sense of cuisine, adventure sports, hospitality etc.) and enjoy the Scenic beauty of the Place. Thereby it is necessary for the government to stress on these particular factors and should try to take active steps to preserve the natural scenic beauty of the place. The inferences from this research can have significant policy and marketing implications of policies and strategies adopted by public and private sectors respectively, thereby facilitating the growth of tourism through satisfied and loyal tourists. Efforts should be made to identify the desires of different tourist groups and customized tour packages can be marketed as a more differentiated service for the most fulfilling experience by identifying the major areas of interests which motivates people come to Goa. Government also should try to incorporate and promote the natural beauty of Goa in its tourism advertisement in order to appeal to the tourists and increase the tourism in the state. An important stakeholder of tourism in Goa is private sector and government should try to develop public private partnerships while devising policies focusing on areas recommended above.

The study however, has its own limitations as tourist behavior cannot be measured only through perception attributes and under human decision various other internal factors also play a significant role in guiding decisions. This study focuses on understanding destination-based (Goa) tourist perception which is addressing only a certain aspect of the bigger picture. For a

complete comprehension of tourist behavior, along with this research other dimensions and aspects also need to be appreciated.

REFERENCES:

Web Sources:

- 1- http://sphweb.bumc.bu.edu/otlt/MPH-Modules/BS/BS704_Nonparametric/BS704_Nonparametric_print.html
- 2- <http://www.statisticssolutions.com/significance-tests-for-more-than-two-dependent-samplesfriedman-test-kendalls-w-cochrans-q/>
- 3- <http://www.kovcomp.co.uk/xlstat/tools/non-parametric-tests-on-k-paired-samples.html>
- 4- http://www.originlab.com/search/index.aspx?site=default_collection&output=xml_no_dtd&pro_xstylesheet=Originlab&client=Originlab&q=Cochran+test&filter=p
- 5- <https://seriousstats.wordpress.com/2012/02/14/friedman/>
- 6- <http://www.statisticssolutions.com/significance-tests-for-more-than-two-dependent-samplesfriedman-test-kendalls-w-cochrans-q/>

Bibliography

BR., L. (1993). *Statistics: screening and data summary*. JPO.

Cochran, W. G. (December 1950). "The Comparison of Percentages in Matched Samples". *JSTOR*.

Conover, W. J. (1999). *Practical Nonparametric Statistics* (Third ed.). Wiley, New York, NY USA.

Fagerland, M. W. (2012). *t-tests, non-parametric tests, and large studies—a paradox of statistical practice?* BMC Medical Research MethodologyBMC series.

Friedman, M. (1937). "The use of ranks to avoid the assumption of normality implicit in the analysis of variance." *JSTOR* 2279372.

GA., F. (1981). *Ferguson GA*. 5th ed. New York: McGraw-Hill Book Co., 1981.

L.Don.Lehmkuhl, P. F. (1994). *Nonparametric Statistics: Methods for Analyzing Data Not Meeting Assumptions Required for the Application of Parametric Tests*.

Siegel, S., & Castellan, N. J. (1988). *Nonparametric Statistics for the Behavioral Sciences*. 2nd ed. New York: McGraw-Hill.

Cohen, E. (1972). "Toward sociology of international tourism". *Social Research*, Vol. 39, No. 1, pp.164–182.

- Crompton, J. (1979). 'Motivations of pleasure vacations'. *Annals of Tourism Research*, pp.408–424.
- Dann, G. (1997). 'Anomie, ego-enhancement and tourism'. *Annals of Tourism Research*, Vol. 4, No. 4, pp.184–194.
- Fratu, D. (2011). Factors of influence and changes in the tourism consumer behavior. *Bulletin of the Transilvania University of Braşov*, Vol. 4, No. 1, pp.119–126.
- Gnoth, J. (1997). 'Tourism motivation and expectation formation', . *Annals of Tourism Research*, Vol. 24, No. 2, pp.283–304.
- Goel, P. P. (2017). Enhancing the effectiveness of marketing a tourist destination using satisfaction analysis. *Int. J. Business and Systems Research*, Vol 11, issue 1-2,.
- Shaw, G. a. (2002). *Critical Issues in Tourism: A Geographical Perspective*. 2nd ed., Blackwell, Oxford.
- Yoon, Y. a. (2005). 'An examination of the effects of motivation and satisfaction on Destination Loyalty: a structural model'. *Tourism Management*, Vol. 26, No. 1, pp.45–56.