

# Consumers' Perception on Selected (WBSTC & HNJPSS) Ferry Services in Kolkata- A Comparative Insight

Anusree Bose<sup>1</sup> Sayan Basu<sup>2</sup>

*Research Scholar, University of Burdwan, West Bengal<sup>1</sup>*

*Research Scholar, West Bengal State University, West Bengal<sup>2</sup>*

*Corresponding Author: Sayan Basu*

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**ABSTRACT:** The current crisis of the world has affected a lot of people. Not only just people but also various organizations as well. One of the most vital factors behind these crises was the shortage and increased prices of petroleum products. Inflation increased and as reaction layoffs starts taking place. Because of lesser job securities, it resulted in less affordability of the luxuries. It becomes difficult for people to afford many things and personal transport was also one of those luxuries. According to Peter Drucker “**quality in a service is not what the employers put into it. It is what the customers get out of it**”. Ferry service, being a part of public transport, is considered as an alternative means of transportation. It is a very eco friendly mode of transport and also cheaper than other modes of transport. The present study has been conducted to measure the various dimension of customer satisfaction on the basis of the service provided by the organization related to ferry service on Hooghly River plying between Howrah and Kolkata.

**Keywords:** - Ferry service, Customers' satisfaction, E-ferry system Two sample T-test, Yule coefficient of association

## I. INTRODUCTION

India has an extensive network of rivers, lakes and canals. Development of which can provide an efficient network of inland transport. Indian inland waterways play a vital role in economic development. India has a long history of inland water transport prior to the development of road and railways. Although the day by day the system of water transport is improving but unfortunately it is the most neglected part of existing transport scenario of India.

West Bengal is one of the few states of India where the inland waterway plays a vital role for passenger and cargo movement. One of the marginalized yet significant modes of urban transport in Kolkata, Howrah and South 24

Parganas is the ferry service on Hooghly River which helps in the transport of daily swap from one bank of the river to another, i.e. between Howrah and Kolkata, Howrah to South 24 Parganas or from one place to another on the same bank.

The first ferry service on the Hooghly River starts in 1975 under the authority of **Sunderban Launch Syndicate**. But this agency could not continue this service for a long time. After that in 1980, another organization was created called **Hooghly Nodi Jalapath Paribohon Samabai Samiti Limited (HNJPSSL)** which is a government-sponsored cooperative organization started to continue this service. The service of this organization was first launched between Howrah to Babughat. As a result of which travel from Howrah to Kolkata become very easy and also within a very short time. In 1992, Government of West Bengal starts its own ferry service with **West Bengal Surface Transport Corporation (WBSTC)**. Currently these two organizations are mainly providing ferry service on Hooghly River. Except these two there are two other organizations relating to the ferry service are available, named **Ghatal Stream Navigation Private Limited (GSNPL)** and **Indo Swiss Trading Company Private Limited (ISTCPL)**. These four authorities are currently providing ferry service on Hooghly River from Howrah to Kolkata which make the travel from Howrah to Kolkata extremely smooth and comfortable.

## II. BRIEF REVIEW OF LITERATURE

Agarwal, (2008) opined that in today's competitive market scenario building and maintaining a healthy relationship with the customers is extremely momentous for the sustainability of the business. For which organization needs to focus on the identification of the factors causing customers satisfaction and dissatisfaction.

**Budiono (2009)** spoken of that as Indonesia is one of the most populated countries in the world next after China, India, and USA face a large number of travel demand. Therefore Indonesia deals with an explosive growth in vehicle ownership and utilization. High increasing motorization in Indonesia causes many problems like traffic congestion; a high level of pollution, a high consumption non-renewable energy resource etc and Public transport is one important solution for this problem. But unfortunately through this study it is revealed that customer is not satisfied yet with public transport service as public bus transport cannot compete with the attractiveness of the private car. The result of the additional analysis that was carried out in Jakarta and Jogjakarta shows that the main reasons behind the dissatisfaction of the customers regarding the public bus transport are-

- i. The lower frequency of the buses which can't fulfill the excessive travel demand,
- ii. Lower capacity of fulfillment in public bus transport bringing longer travel time.
- iii. Customer do not experience of better value that they pay for public bus transport. Therefore these three factors have to be improved to keep existing customer and attract more customer in public bus transport.

**Lierop et al. (2018)** reveals that Public transport ridership retention is a challenge for many cities now-a-days. Passengers' satisfaction and loyalty depends on various factors. The service factors that are associated with satisfaction are on-board cleanliness and comfort, courteous and helpful behavior from operators, safety, as well as punctuality and frequency of service and on the other hand, loyalty is associated with users' perceptions of value for money, on-board safety and cleanliness, interactions with personnel and the image and commitment to public transport that users feels. **Zakaria et al. (2018)**: stated that with the development of the transport industry quality of the service becomes an apparent part of it. This study was conducted to provide a valuable insight to an organization that operates the Kuala Perlis terminal regarding the quality of jetty terminal towards passenger satisfaction. Findings of this study state that most of the passengers are found to be satisfied with the facilities at the Kuala Perlis ferry terminal. Therefore, the service provider should take responsibility for the seating arrangement in order to provide more comfort to all passengers at the ferry terminal

**Kumar et al. (2016)** conducted this research to measures the level of customer satisfaction with the quality of bus services offered by Uttar Pradesh State Public Transport Corporation (UPSRTC) in Uttar Pradesh (India) from various dimensions of service that includes safety, behavior, facilities, response to quarries, comfort, cost, availability etc.

#### **Objective of this study:**

- To compare the various dimentions of the consumers' satisfaction received from the service provided by WBSTC & HNJPSS Ltd.- two leading ferry operators on Hooghly river.
- To compare the overall customers' satisfaction received from the services provided by WBSTC & HNJPSS Ltd.
- Keeping environmental protection in mind, examine the relationship between consumers' desire of using e-ferry system & consumers' intention to pay more for availing this service.

#### **Research Methodology:**

- At first a pilot survey has been conducted here within 20 respondents to gather a basic knowledge about the customers' perception regarding ferry service.
- Then on the basis of the factors identified a structured questionnaire has been prepared to conduct the market survey within 120 respondents (60 of HNJPSS Ltd. & 60 of WBSTC)
- The time period of this study is 3 months i.e. Dec'19 to Feb'20.
- Data thus gathered has been analyzed by using the two sample t-test at 5% level of significance and confidence Interval also has been used here to analyze the data
- Yule's coefficient of association has also been carried out to explore the relationship between- **Consumers' desire of using e-ferry system & consumers' intention to pay more for availing this service.**

**General information regarding the ferry service:** In this study we considered the two main service providers of ferry service on Hooghly River – i. WBSTC and ii. HNJPSS Ltd. to estimate the satisfaction level of the passengers avail the ferry service. The general information which have been gathered from the office of these two service providers are constructed bellow

Passengers travel in each single trip daily on an average basis and no. of ferries operate in each route  
**WBSTC**      **HNJPSS Ltd.**

Route Name	No. of passengers	No. of ferry operate
Shipping	60000	4
Fairly	40000	3

Route Name	No. of passengers	No. of ferry Operate
Fairly	4404	2
Babughat	14874	3
Bag bazar	3292	4

Information regarding service starting & ending time and total hour of operation

Service provider	Starting time	Ending time	Total operating time
WBSTC	8 am	8 pm	12 hours
HNJPSS Ltd.	7.30 am	9 pm	13.5 hours

Total no. of single trip in a day in each route for each service provider

Service provider	Route name	No. of trip
WBSTC	Howrah to shipping	85
WBSTC	Howrah to fairly	69
HNJPSS Ltd.	Howrah to fairly	81
HNJPSS Ltd.	Howrah to Babughat	81
HNJPSS Ltd.	Howrah to Bag bazar	25

Safety measures per vessel

Service provider	Life jackets	Life boya
WBSTC	40	200
HNJPSS Ltd.	7	7

Time interval between each single trip

WBSTC

Howrah to Shipping

Time	Duration	Interval time(mints)
8 am to 9 am	1 hr	20 mints
9 am to 9.30pm	30 mints	10 mints
9.30 pm to 11.30 pm	2 hrs	6 mints
11.30 pm to 5 pm	5.5 hrs	10 mints
5 pm to 7 pm	2 hrs	6 mints
7 pm to 8 pm	1 hr	10 mints

Howrah to Fairly

Time	Duration	Interval time(mints)
8 am to 9 am	1 hr	20mints
9 am to 8 pm	11 hrs	10 mints

HNJPSS Ltd.

Howrah to Fairly

Time	Duration	Interval time(mints)
7.30 am to 9 pm	13.5 hrs	10 mints

Howrah to Babughat

Time	Duration	Interval time(mints)
7.30 am to 9 pm	13.5 hrs	10 mints

Howrah to Babughat

Time	Duration	Interval time
9.30 am to 11.30 am	2 hrs	15 mints
11.30 am to 5.30 pm	6 hrs	1 hr

5.30 pm to 7.30 pm	2 hrs	15 mints
7.30 pm to 9 pm	1.5 hrs	30 mints

**Data Analysis**

This chapter is concerned with the presentation of the data collected from our survey of the customers based on a questionnaire prepared by us. In our selected area there were two service providers of ferry service- WBSTC and Hooghly Nodi Jalapath Samabay Samity Ltd. (HNJSS Ltd.). WBSTC provides this service in two routes- Howrah to Fairly and Howrah to Shipping whereas HNJSS Ltd. provides service in three routes Howrah to Fairly, Howrah to Babughat and Howrah to Bagbazar. We had conducted our survey among the customers of each route.

**Area Covered-**

- i. Howrah ferry ghat to fairly ghat and vice versa
- ii. Howrah ferry ghat to shipping ghat and vice versa
- iii. Howrah to Babughat and vice versa
- iv. Howrah to Bagbazar ghat and vice versa

**Sample size-** Total Sample= 120

**HNJSS Ltd.**

Route Name	No. of sample
Howrah to fairly	20
Howrah to BabuGhat	20
Howrah to Bag bazar	20
<b>TOTAL</b>	<b>60</b>

**WBSTC**

Route Name	No. of Sample
Howrah to Fairly	30
Howrah to Shipping	30
<b>TOTAL</b>	<b>60</b>

**TOTAL**

Name of service provider	No. of Sample
HNJSS Ltd.	60
WBSTC	60
<b>TOTAL</b>	<b>120</b>

**Nature of Sample-** Convenient Sampling

Thus gathered data relating to the personal information, Passengers’ travel behavior and passengers’ perception regarding fare charged & others are presented here in form of graph and tables and also analyzed accordingly

**Personal Information**

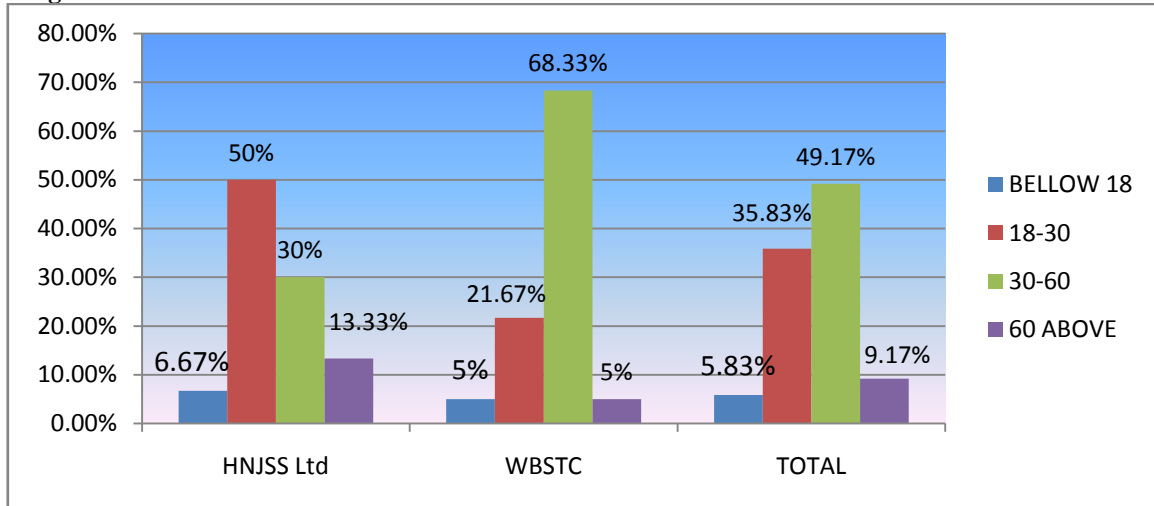
**3.1. Gender**

**TOTAL**



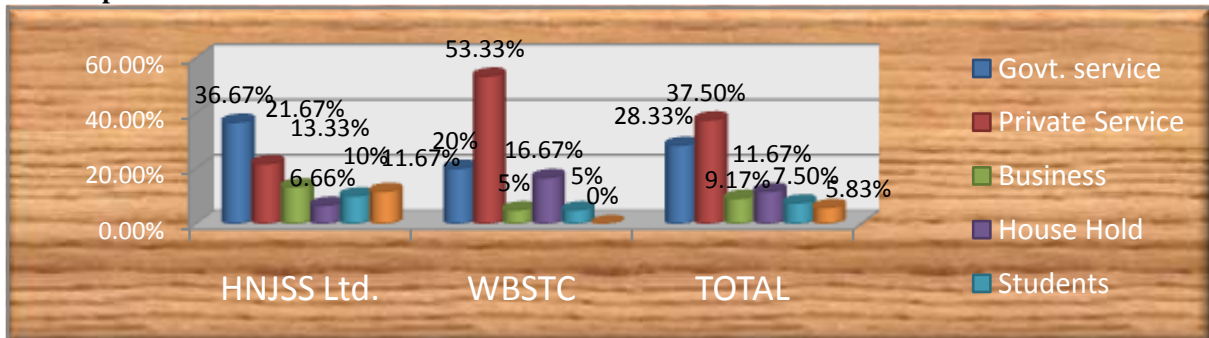
**Observation:** It can be observed from the aforesaid tables that out of total 60 respondents of the routes of HNJSS Ltd. 66.67% respondents are male and 33.33% respondents are female whereas in WBSTC out of total 60 respondents 68.33% respondents are male and 31.67% respondents are female. Overall, out of 120 respondents 67.5% are male and 32.5% are female.

### 3.2. Age



**Observation:** It can be observed from the above tables and chart that most of the respondents of HNJSS Ltd. and WBSTC belong to the age group of 18 to 30 and 30 to 60 respectively whereas in overall most of the respondents are belong to the age group of 30 to 60 and only 5.83% of the total respondents are belong to the age group of bellow 18.

### 3.3. Occupation:



**Observation:** It can be noticed from the above tables and chart that most of the respondents of HNJSS Ltd. and WBSTC are involved in Govt. Service and private service respectively. Whereas in overall many respondents are involved in Govt. service next to the Private service which is 28.33% and 37.5% respectively.

### 3.4. Income:

#### HNJSS Ltd.

Income (in Rs.)	Nil	Bellow 10000	10000 to 20000	20001 to 30001	30001 & above	TOTAL
Frequency	10	10	4	25	11	60
Percentage	16.67%	16.67%	6.67%	41.66%	18.33%	100%

**Observation:** The above information depicts that 10 respondents (16.67% of total respondents) of HNJSS Ltd. have no income. Out of this 10 we have seen before that 6 are students and 4 are housewives. Out of the

remaining 50 respondents 50% and 22% have monthly income between Rs. 20001 to 30000 and Rs. 30001 & above respectively

**WBSTC**

Income (in Rs.)	Nil	Bellow 10000	10000 to 20000	20001 to 30001	30001 & above	TOTAL
Frequency	13	3	13	22	9	60
Percentage	21.67%	5%	21.67%	36.66%	15%	100%

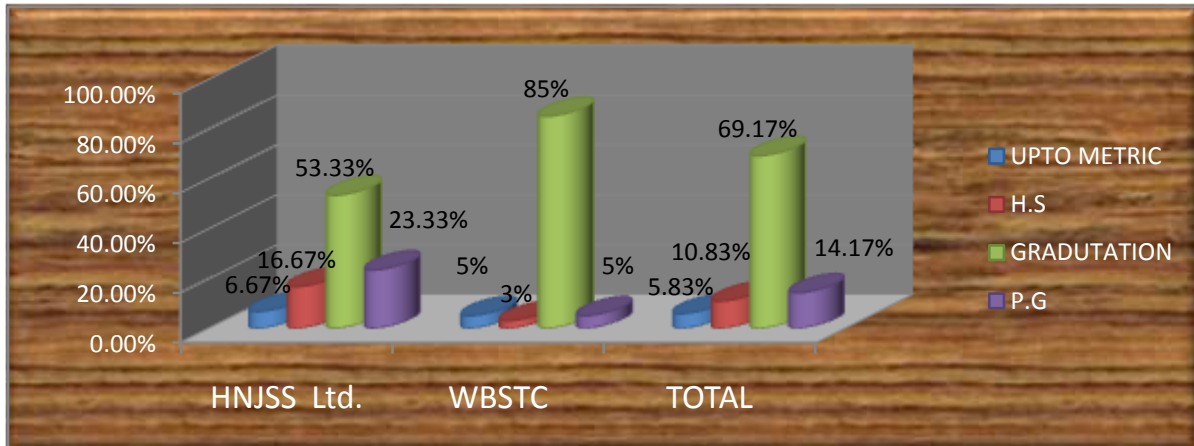
**Observation:** The above table shows that 13 respondents (21.67% of total respondents) of WBSTC have no income. Out of this 13 we have noticed before that 10 are housewives and 3 are students. Out of the remaining 47 respondents 46.81% have monthly income between Rs. 20001 to 30000 where as only 19.15% respondents of remaining 47 have monthly income Rs. 30001 & above.

**TOTAL**

Income (in Rs.)	Nil	Bellow 10000	10000 to 20000	20001 to 30001	30001 & above	TOTAL
Frequency	23	13	17	47	20	120
Percentage	19.17%	10.83%	14.17%	39.16%	16.67%	100%

**Observation:** From this above table we can see that 23 respondents (19.17% of total respondents) have no income. Out of the remaining 97 respondents most of the respondents have monthly income of Rs. 20001 to 30000 i.e. 48.45% of the remaining whereas only 13.40% and 20.62% of the remaining respondents have the monthly income of bellow Rs. 10000 and above Rs. 30000 respectively.

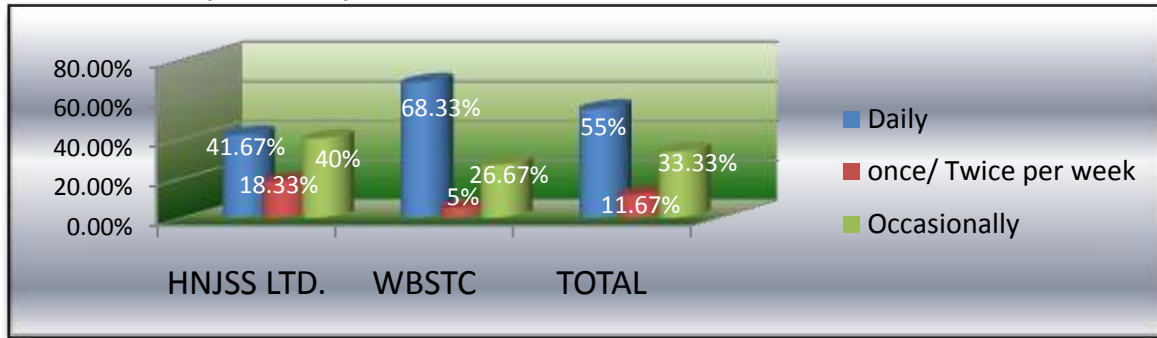
**3.4. Education:**



**Observation:** From this above tables and chart it can be observed that most of the respondents are graduated.

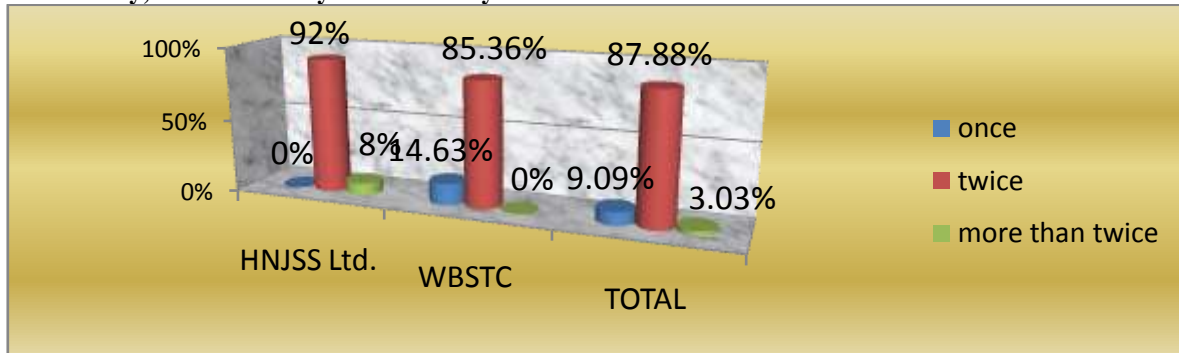
Passengers' behavior

### 3.5.1. How often do you use ferry?



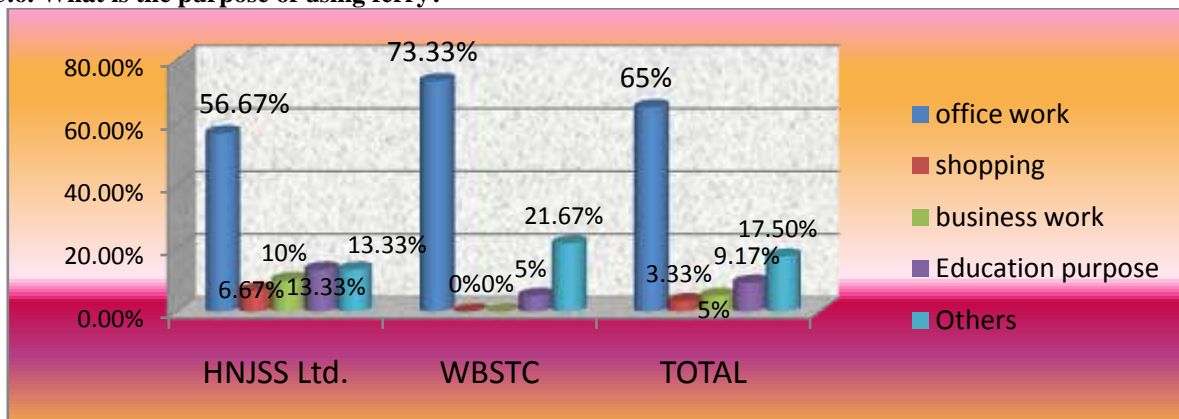
**Observation:** The above table shows that out of total 60 respondents of in HNJS Ltd. 41.67% used the ferry service daily whereas in case of WBSTC out of total 60 respondents 68.33% used this service daily. Overall, out of total 120 respondents more than 50% respondents avail this service regularly.

### 3.5.2. If daily, then how many times in a day?



**Observation:** The above tables and chart depict that more than 80% of the daily passengers avail this service twice in a day both in case of each service providers and in total.

### 3.6. What is the purpose of using ferry?



**Observation:** The above tables and chart depicts that more than 50% of the respondents avail this service for the office purpose both in case of HNJS Ltd and WBSTC. In case of WBSTC it can be observed that this ferry route is mainly used for the office purpose than any other purpose.

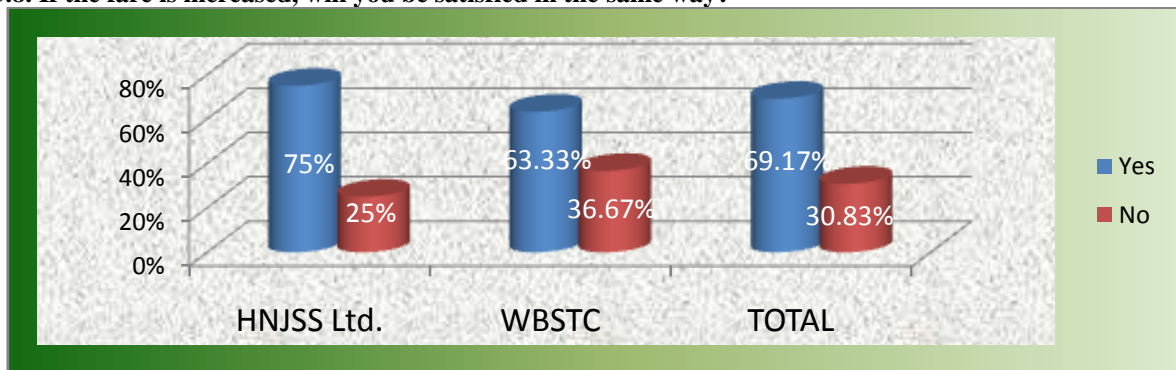
Perception on fare charged & Others

**3.7. Are you satisfied with the fare charged?**

Service provider	Yes	No
HNJSS Ltd.	60	0
WBSTC	60	0
<b>TOTAL</b>	120	0

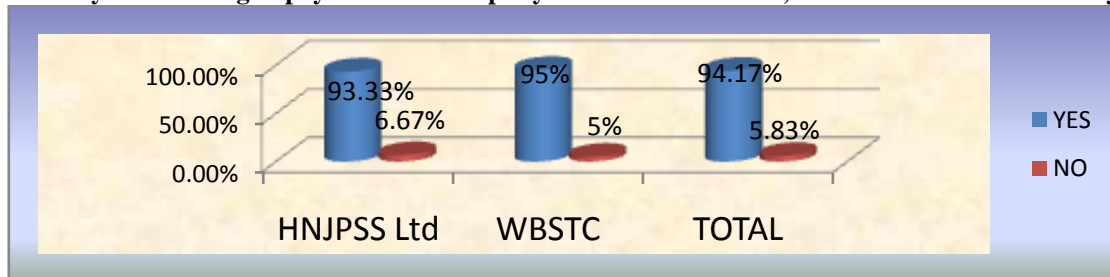
**Observation:** It can be easily observed from the above table that all the respondents are very much satisfied with the fare charged.

**3.8. If the fare is increased, will you be satisfied in the same way?**



**Observation:** It can be observed from the above tables and chart that more than 60% respondents will be satisfied with the fare in the same way even if it is increased by 66%. According to the satisfied passengers as this route is less time consuming and free from traffic so they are agreed to pay more to avail this service. But out of the dissatisfied respondents many of them thought that their decision will be depend on how much fare is increased. If the fare is not increases not too much then they can think about to pay this.

**3.9. Would you be willing to pay more for a trip if you had more secured, faster and comfortable ferry?**



**Observation:** It can be easily noticed from the above table and chart that more than 90% respondents are agreed to pay more for availing better experience of ferry service.

To analyze the customers' satisfaction level relating to the ferry service the satisfaction type of the customers has been categorized on the basis of four variables- **i. Convenience, ii. Customer care iii. Frequency & iv. Safety measures.** The respondents have ranked those forms of satisfaction based on a scale within '1' to '5' where '1' & '2' refers to **dissatisfied** '3' refers to

**neutral** and '4' & '5' refers to **satisfied**. The data collected are analyzed by doing a two sample T-test with level of significance= 0.05 and degree of freedom (n-1) =118 [where, sample size (n) = 120 & assumed that population mean ( $\mu$ ) =3]. Further the various services provided by the ferry operators under these 4 types of variables are also ranked based on the % of satisfied respondents.  
**Hypothesis Testing of customers' satisfaction on the basis of selected Measures**



**H<sub>0</sub>:** There is no significant difference between the particular satisfactions received from the services provided by both the operators

**H<sub>1</sub>:** There is a significant difference between the particular satisfactions received from the services provided by both the operators

Calculation of two sample t-test for comparing mean [where,df= 118 & level of significance= 0.05

Variables	Service Providers	Mean (x̄)	Stdev (s)	C.V [s/x]	T statistic	Tabulated Value (T.V)	Result	Margin of error [m.e= T.V*(s/√n)]	C.I= x̄ ± m.e	
									U.B	L.B
Convenience	WBSTC	3.5	1.25	0.36	0.12	1.9801	<b>H<sub>0</sub> Accepted</b>	0.89	4.39	2.61
	HNJPSS Ltd.	3.47	1.47	0.42					4.34	2.60
Customer Care	WBSTC	4.15	1.20	0.29	1.91	1.9801	<b>H<sub>0</sub> Accepted</b>	1.06	5.21	3.09
	HNJPSS Ltd.	3.72	1.29	0.35					4.67	2.77
Frequency	WBSTC	3.32	1.17	0.35	3.2	1.9801	<b>H<sub>0</sub> Rejected</b>	0.85	4.17	2.47
	HNJPSS Ltd.	2.68	1.11	0.41					3.36	2.00
Safety Satisfaction	WBSTC	2.53	1.17	0.46	3	1.9801	<b>H<sub>0</sub> Rejected</b>	0.65	3.18	1.88
	HNJPSS Ltd.	1.87	1.30	0.70					2.35	1.39
Overall Satisfaction	WBSTC	4.18	0.59	0.14	7.38	1.9801	<b>H<sub>0</sub> Rejected</b>	0.15	4.33	4.03
	HNJPSS Ltd.	2.63	1.49	0.57					3.01	2.25

**Observations:**

Relating to convenience & customer care satisfaction no significant difference can be observed between the services provided by WBSTC & HNJPSS Ltd. as the t-statistics  $(_{0.05, 118}) - 0.12$  &  $1.91$  are lower than the tabulated value  $1.9801$ . So the null hypothesis is accepted here against the alternative hypothesis which signifies that people gets more or less same kind of convenience & customer care satisfaction from the service provided by both the operators.

Whereas relating to frequency & safety satisfaction a contradictory picture can be observed. In that case the t-statistics  $(_{0.05, 118}) - 3.2$  &

$3$  are higher than the tabulated value  $1.9801$ . So here the null hypothesis is rejected here in favor of alternative hypothesis. So, it can be said that there people gets different satisfaction from the service provided by both the service providers.

Even in case of overall satisfaction a similar result can be observed. As here t-statistics  $(_{0.05, 118}) - 7.38$  is higher than the tabulated value  $1.9801$  so here also the null hypothesis rejected in favor of alternative hypothesis which defines that people gets different overall satisfaction from the service provided by both the service providers.

Ranking of various services provided under these 4 variables on the basis of the % of satisfied respondents

**Variable 1: Convenience**

service	No. of respondents	Satisfied (in %) (rank-4/5)	Neutral (in %) (rank-3)	Dissatisfied (in %) (rank-2/1)	Rank
Seat Sufficiency	60	46.7%	0%	53.3%	3
Comfortability of seats	60	43.3%	10%	46.7%	4
Jetty and vessels	60	80%	5%	15%	2
<b>Connection with other mode transport</b>	60	<b>90%</b>	5%	5%	<b>1</b>

service	No. of respondents	Satisfied (in %) (rank-4/5)	Neutral (in %) (rank-3)	Dissatisfied (in %) (rank-2/1)	Rank
Seat Sufficiency	60	53.33%	6.67%	40%	3
Comfortability of seats	60	35%	8.33%	56.67%	4
Jetty and vessels	60	60%	0%	40%	2
<b>Connection with other mode transport</b>	60	<b>95%</b>	3.33%	1.67%	<b>1</b>

**Variable 2: Customer care**

**WBSTC**

service	No. of respondents	Satisfied (In %) (rank-4/5)	Neutral (In %) (rank-3)	Dissatisfied (in %) (rank-2/1)	Rank
Cleanliness of vessels	60	70%	0%	30%	2
<b>Behavior of staffs</b>	60	<b>90%</b>	0%	10%	<b>1</b>

**HNJPSS Ltd.**

service	No. of respondents	Satisfied (In %) (rank-4/5)	Neutral (In %) (rank-3)	Dissatisfied (in %) (rank-2/1)	Rank
Cleanliness of vessels	60	68.33%	3.33%	28.34%	2
<b>Behavior of staffs</b>	60	<b>85%</b>	1.67%	13.33%	<b>1</b>

**Variable 3: Frequency**

**WBSTC**

service	No. of respondents	Satisfied (in %) (rank-4/5)	Neutral (in %) (rank-3)	Dissatisfied (in %) (rank-2/1)	Rank
Availability of ferry during office time	60	55%	0%	45%	2
Availability of ferry during weekend	60	10%	10%	80%	3
<b>Punctuality regarding ferry service</b>	60	<b>90%</b>	5%	5%	<b>1</b>

**HNJPSS Ltd.**

service	No. of respondents	Satisfied (in %) (rank-4/5)	Neutral (in %) (rank-3)	Dissatisfied (in %) (rank-2/1)	Rank
Availability of ferry during office time	60	31.67%	0%	68.33%	2
Availability of ferry during weekend	60	20%	10%	70%	3
<b>Punctuality regarding ferry service</b>	60	<b>58.33%</b>	8.33%	33.33%	<b>1</b>

**Variable 4: Safety Measures**

**WBSTC**

service	No. of respondents	Satisfied (in %) (rank-4/5)	Neutral (in %) (rank-3)	Dissatisfied (in %) (rank-2/1)	Rank
<b>Safety satisfaction equipments e.g. life jackets</b>	60	<b>45%</b>	0%	55%	<b>1</b>
Guards and workers service	60	40%	0%	60%	2

**HNJPSS Ltd.**

service	No. of respondents	Satisfied (in %) (rank-4/5)	Neutral (in %) (rank-3)	Dissatisfied (in %) (rank-2/1)	Rank
Safety satisfaction equipments e.g. life jackets	60	13.33%	5%	81.67%	2
<b>Guards and workers service</b>	60	<b>28.33%</b>	5%	66.67%	<b>1</b>

**Calculation of Yule’s Coefficient of Association [Where, A & B = Positive Attributes; α & β = Negative Attributes]**

A= No. of respondents **wants** to use the e-ferry system

α= No. of respondents **do not want** to use the e-ferry system

B= No. of respondents **intend to pay more** to avail that service

β= No. of respondents **do not intend to pay more** to avail that service

No. of Respondents	A	α	Total
<b>B</b>	59	7	<b>66</b>
<b>β</b>	31	23	<b>54</b>
<b>Total</b>	<b>90</b>	<b>30</b>	<b>120</b>

$$\begin{aligned} \text{Yule's Coefficient of Association (Q)} &= \frac{\{(AB * \alpha\beta) - (A\beta * \alpha B)\}}{\{(AB * \alpha\beta) + (A\beta * \alpha B)\}} \\ &= \frac{\{(59*23) - (31*7)\}}{\{(59*23) + (31*7)\}} \\ &= \mathbf{0.72} \end{aligned}$$

**Observation:** From this table it can be observed that 75% of the total respondents desire to use the e-ferry system and 55% of the total respondents intend to pay more for availing this service. According to the outcome of Yule’s coefficient of association it can be observed that there is a more or less strong positive association between these two attributes i.e. **Consumers’ desire of using e-ferry system & Consumers’ intention to pay more to avail this service.** So it can be conclude that on the basis of the outcome in future West Bengal Govt. can think about to launch e-ferry system like Hong kong keeping the environmental protection in mind.

**III. CONCLUSION**

Ferry service is a very convenient mode of transport due to various reasons. Presently two service providers- WBSTC & HNJPSS Ltd. provide the ferry service on Hooghly River between Howrah & Kolkata. On the basis of this study we can see that most of the passengers are office goers and according to them they avail this service mainly because of two reasons- Firstly, they can avoid the traffic and reach their destination on time and secondly, the convenient location of the ferry Ghats connects the busy area of Kolkata like- Esplanade, Dalhousie etc with Howrah within a very short time. Passengers are also very satisfied regarding the fare charged. Even according to this data if the price is increased then also more than 60% of the passengers on an overall basis will be satisfied in the same way. Moreover, more than 90% of the passengers on an overall basis will like

to pay more if they are able to attain more secure, faster and comfortable ferry service.

On the basis of the analysis part it can be said conclude that people get more or less same convenience & customer care satisfaction from the service provided by both the operators. But relating to frequency & safety satisfaction a significant difference can be observed between them which affects the overall satisfaction from the service provided by both the operators. Therefore it can be noticed that in case of overall satisfaction too a significant difference can be observed between them.

Lastly, as people become conscious about the environmental threat therefore more than 50% of total respondents want to use the e-ferry system in near future to keep the river Ganga clea

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