

Data Analytics on Gratification of Airline Passenger with their Experience

H. M. Moyeenudin, Shaik Javeed Parvez, R. Anandan, Bindu G.

Abstract: *The flight catering has been witnessing a constant transformation based on their passenger's preferences that made an effect of full scale patterns with a developing recipes and food service qualities. This food and beverage quality has become a highlight for domestic and international airlines carriers in competing with each other and keeps their prestige and prominence in the memories of their airline passengers, as the expanding desires of airline passengers for excellent service and a nutritional diet with a choice based menu on flight. There are numerous airline carriers has increased food and beverage quality and service to support and personalizing their passenger expectation, which incorporates both ground and on board experience to their passengers particularly from the perspective of holding fulfilled loyal airline passengers and to attract the future passengers. The aim of this analysis is to determine the experience of the airline passengers in regard with food served during their travel at airline based on the superiority of food provided by flight catering services and the quality of services above all their overall experience at airline.*

Keywords: *Flight Catering, Airline, Passenger experience, Food quality.*

I. INTRODUCTION

According to a recent study, the flight catering providing a platform for business which enlisted an estimation of Indian rupees 1800 cores during the financial year 2018 to 2019, and has recorded a Compound annual growth rate (CAGR) of 5% at this juncture, an air travel specifically is found to assume a significant job in moving individuals or items starting with one spot then onto the next either locally or globally based on the type of airline [1]. The positive advancement of the Airline and the travel industry has made incredible challenge among the huge and domestic airlines [2]. The flight catering managing certainty on food products and beverages, has become a focal point of their services in competing with each other and to keep their prestige in the memories of their airline passengers [3]. The on board services like providing breakfast, lunch and dinner with beverages has benefited the airline companies in promotion of their business with the frequency of loyal and regular passenger on board and also has given a positive phase for tourist to choose a specific Airline carrier [4].

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A few airline carriers have contributed a lot of cash for on board food services with a à la carte menu to more eagerly delight airline travelers also by the inevitability contributing a decision of order or reserving on board dishes will effectively advancing their onboard menu selection with a touch screen tablets [5], airlines are focused to enlist prominent culinary experts explicitly answerable for neglecting the dinner trend, by structuring the list of dishes and the type of menu designed to encounter the development in airline passenger requirements [6]. The airline catering satisfaction obtained compared to other attributes has accomplished the major overall satisfaction being a section of the extreme assistance for the experience of airline travel, It is noticed that a few travelers are happy to change aircrafts, modify travel designs and even pay more cash for high quality in airline food and beverage options [7]. In expansion of the variety of information in this field, this analysis is carried out on the basis of food qualities and service toward travelers' percentage of satisfaction and to know their loyalty in becoming regular flyer [8]. The Airline service industry hence ought not disregard this component yet accept the open door to make progressively alluring and satisfactory in-flight food and beverage experience alongside other issue as showcasing apparatuses in pulling in travelers to re-flying with them [9]. The in-flight providing food administrations showcase has been spectating constant transmutation, given the impact of full scale patterns - developing spread of urban spread and globalization - just as smaller scale patterns with the expansion in air traffic, carrier organizations are probably going to observe gradual development openings in the coming years. Because of expanding paces of rail and street transportation, combined with requesting ways of life, 'time' turns into a critical factor for travelers who choose air travel, which has extended the present extent of activity for in-flight cooking specialist organizations [10].

II. MATERIALS & METHODS

This data analytics is studied with the passengers who came back to Aringnar Anna International Airport from International airlines at Chennai. The primary evaluation is done by survey questionnaire prepared exclusively with satisfactory measures for airline passenger's experience by flight catering and cabin crew food service during November 2019. The firm quality and legitimacy of the questions were verified around 80 questionnaires are distributed randomly and 65 were used for evaluation, then the essential analysis was done with the help of Statistical Package for Social Sciences (SPSS 24 version) to relate the association of variable with results through, T test, Correlation and a three

dimensional scattered plot graph to identify the variable airline passengers. association with each other on know the satisfaction level of

III. RESULTS

A. T – Test

Table -1, T-Test for Passenger satisfactory values on flight catering

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Palatability	65	80.06	6.914	.858
Food Temperature	65	25.23	3.521	.437
Nutritional Diet	65	69.63	8.512	1.056
Taste Consistency	65	24.26	2.802	.348
Food Colour	65	83.37	7.405	.918
Food Portioning	65	68.26	7.111	.882
Overall Experience	65	84.62	4.752	.589

The table 1. Shows the mean 80.06 that is created by the non-missing value 65 with a standard deviation 6.914, for palatability with standard error mean .858, denotes that the variable displays a positive response on palatability along with the food portioning with a mean 68.26 having standard error .882. Indicates a lower mean comparatively with

palatability thus the passengers are satisfied with the taste of the food and also with the overall experience by having a mean value of 84.62, with a lesser standard deviation value 4.752. Proves that the mean is favorable with overall experience of passenger.

Table 2. One sample test for Passenger satisfaction on flight catering

One-Sample Test						
	Test Value = 65					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
PALATABILITY	17.562	64	.000	15.062	13.35	16.77
FOOD TEMPERATURE	-91.056	64	.000	-39.769	-40.64	-38.90
NUTRITIONAL DIET	4.386	64	.000	4.631	2.52	6.74
TASTE CONSISTENCY	-117.209	64	.000	-40.738	-41.43	-40.04
FOOD COLOUR	20.000	64	.000	18.369	16.53	20.20
FOOD PORTIONING	3.698	64	.000	3.262	1.50	5.02
OVERALL EXPERIENCE	33.278	64	.000	19.615	18.44	20.79

This one sample test output shows t= 17.562 by degrees of freedom 64, and p=.000 denotes this variable palatability is statistically significant. As indicated by the values of the analysis, it was exactly shown that food and beverage service of flight catering had influence on the actual estimation of airline passengers rather than other perspectives. Moreover, it was discovered that the higher they knew about food quality measurements of airline, the more they were happy with in-flight food and beverage served. The mean difference 15.062 with a positive t value. Food temperature t= -91.056 with a mean difference -39.769 indicates a negative t value with the significant value p=.000, these outcomes accentuate the significance of taste consistency and quality. In spite of the significance of in-flight food catering, a large portion of concentrates that have been locally directed on airline companies for the measure focus from place to place development of food choices provided by the general assistance on environment of a

region and airline origin, due to which there is negative t value for taste consistency demonstrates that the taste is not consistent with the overall experience with t= -117.209 and mean difference -40.738 and the results are statistically significant with p=.000. Hence the null hypothesis is rejected. The distinction among desire and mindfulness, qualities of in-flight catering, and impact association with fulfillment is obtained by the quality of food and also with the service staff. Since client esteem is considered as a significant factor influencing the assessment of airline administration and travelling expectation, it has been read as result variable for administration quality in different settings is the main investigation that pre-owned it as result variable for in-flight food quality

B. Correlations

Table 3. Correlation on flight catering food quality and quantity with satisfaction

		PALATABILITY	FOOD TEMPERATURE	NUTRITIONAL DIET	TASTE CONSISTENCY	FOOD COLOUR	FOOD PORTIONING	APPETITE WITH AROMA
PALATABILITY	Pearson Correlation	1	-.110	.899**	-.140	-.092	.198	-.335**
	Sig. (2-tailed)		.382	.000	.268	.465	.114	.006
	N	65	65	65	65	65	65	65
FOOD TEMPERATURE	Pearson Correlation	-.110	1	-.108	.035	-.150	-.031	.308*
	Sig. (2-tailed)	.382		.391	.782	.233	.805	.013
	N	65	65	65	65	65	65	65
NUTRITIONAL DIET	Pearson Correlation	.899**	-.108	1	-.209	-.181	.133	-.200
	Sig. (2-tailed)	.000	.391		.094	.148	.292	.110
	N	65	65	65	65	65	65	65
FOOD TASTE CONSISTENCY	Pearson Correlation	-.140	.035	-.209	1	.046	.225	-.053
	Sig. (2-tailed)	.268	.782	.094		.718	.071	.673
	N	65	65	65	65	65	65	65
FOOD COLOUR	Pearson Correlation	-.092	-.150	-.181	.046	1	-.080	-.057
	Sig. (2-tailed)	.465	.233	.148	.718		.525	.654
	N	65	65	65	65	65	65	65
FOOD PORTIONING	Pearson Correlation	.198	-.031	.133	.225	-.080	1	-.156
	Sig. (2-tailed)	.114	.805	.292	.071	.525		.216
	N	65	65	65	65	65	65	65
APPETITE WITH AROMA	Pearson Correlation	-.335**	.308*	-.200	-.053	-.057	-.156	1
	Sig. (2-tailed)	.006	.013	.110	.673	.654	.216	
	N	65	65	65	65	65	65	65
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

The table 3. Denotes the correlation between the variables consist flight catering satisfactory measures with food quality and quantity and it is absorbed that there is a strongest relationship between the variables nutritional diet and palatability with a value $r = .899^{**}$ and also having a significant value $p = .000$, there is a negative association between the variable food temperature and palatability through $r = -.110$ proves that the temperature of the food is not satisfactory which also reflects on palatability of food likewise this correlation has connection with taste consistency and food temperature through $r = -.140$ indicates

the taste of the food is not consistent with a significant value $p = .268$. The taste consistency of food is also associated by the food portioning with $r = .225$ and significant by value $p = .071$ demonstrates the accompaniments are not sufficient of their meal. The appetite with aroma and palatability has a strong correlation through a value $r = -.335^{**}$ by significant value $p = .006$ and also having strong association by $r = .308^*$ with a significant value $p = .013$ in association by variable food temperature, thus this proves there is a relationship between the

appetite with aroma and palatability with this correlation level of 0.05. This correlation is significant at the 0.01 level., and at the

Table 4. Correlation on passenger overall experience with the cabin crew service attributes.

		FOOD KNOWLEDGE	AIRLINE MENU	OVERALL EXPERIENCE	POLITE	WELL TRAINED CABIN CREW
FOOD KNOWLEDGE	Pearson Correlation	1	-.154	-.021	-.263*	.132
	Sig. (2-tailed)		.220	.866	.034	.295
	N	65	65	65	65	65
AIRLINE MENU	Pearson Correlation	-.154	1	.053	.106	-.048
	Sig. (2-tailed)	.220		.678	.402	.703
	N	65	65	65	65	65
OVERALL EXPERIENCE	Pearson Correlation	-.021	.053	1	.199	-.236
	Sig. (2-tailed)	.866	.678		.112	.058
	N	65	65	65	65	65
POLITE	Pearson Correlation	-.263*	.106	.199	1	-.217
	Sig. (2-tailed)	.034	.402	.112		.083
	N	65	65	65	65	65
WELL TRAINED CABIN CREW	Pearson Correlation	.132	-.048	-.236	-.217	1
	Sig. (2-tailed)	.295	.703	.058	.083	
	N	65	65	65	65	65

*. Correlation is significant at the 0.05 level (2-tailed).

The table 4. Demonstrates the correlation between the variables of food service qualities of cabin crew with the overall experience of passengers. This correlation has a stronger relationship with the food knowledge and politeness with a t value $r = -.263^*$ by significant value $p = .034$ and the overall experience with the food knowledge shows a negative association by value $r = -.021$ along with the significant value $p = .866$ proves that the satisfactory level of airline passengers are not convincing with food knowledge of airline food service crew. The greater part of the dishes viewed as remarkably Buddhist are vegan, however feelings and limitations on the eating of meat, and whether it ought to be denied, shift among orders, at a point when priests and nuns who pursue the vegetarian way to feed themselves by offerings, they may eat accompanying food which are given to them, including meat may cause dissatisfaction. The exemption to this contributions is when non vegetarian food consumption is prohibited in some cultures and religion and not in other, in which case utilization of such meat would good or bad [12]. This component consequently can't be overlooked via flight catering of Airlines however should accept the open door to make progressively appealing and satisfactory food and beverage alongside different components, as showcasing instruments like food service qualities and skills in drawing in nearby and universal travelers to fly with them. There is negative relationship between overall experience with well-trained cabin crew with $r = -.236$, shows airline passengers expectation are not considerably satisfied with food service skills and abilities. While it is improbable that simply setting low desires will totally destroy quality standards for good customer relationship or yield. This correlation determine the strong connection with the food knowledge and behavior of service crew is negatively associated, thus this will spoil the overall experience of the passenger with the significance of 0.05 level. Hence training the airline food service crew will be helpful for airlines in overcoming this issue.

C. Scattered Plot Graph

This graph represents the airline passenger’s satisfaction with food quality and by the attributes of the cabin crew service with food knowledge, most of the passengers have desires on how to receive the food with perception of food and beverage service quality along with the food taste, consistency and portioning.

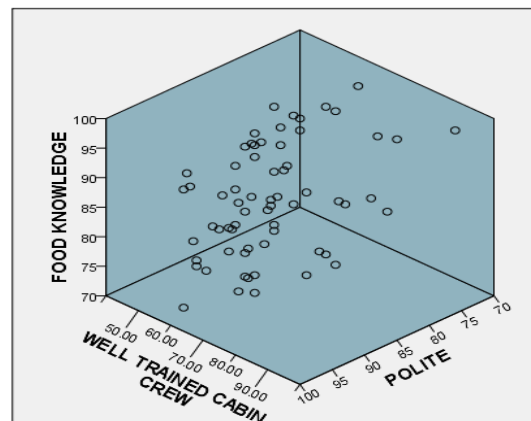


Figure 1. Scattered plot graph with the Comparison of food service skills

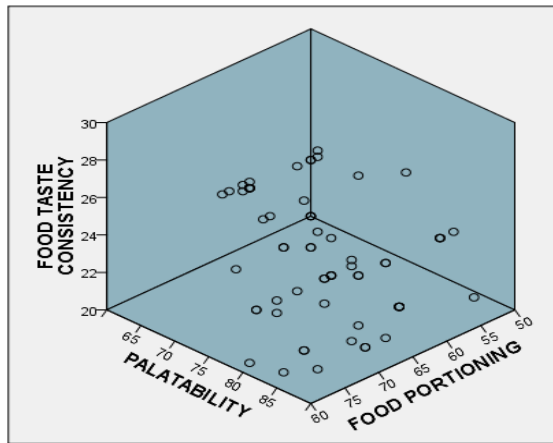


Figure 2. Scattered plot graph with the Comparison of food taste, consistency and portioning.

In fig 1. The level of satisfaction is found to be lesser from the variable “well trained cabin crew” with “food knowledge” as the percentage oscillates from 50% to 60% show a training is required in terms of serving the food with their knowledge on method of cooking with the ingredients added to it, especially knowing the food is a vegetarian or with meat other than politeness as it is noticed that the higher level of satisfaction with cabin crew’s politeness which fluctuates from 75% to 95%. In fig 2. It is noticed that the satisfactory levels are higher with palatability which denotes the airline passengers are satisfied with taste by 80% - 85%, and also with food portion 70%-80%. This analysis ascertains that passengers are satisfied with the quality and the palatability of food and also indicates a lack of training for cabin crew about the food and its additions.

IV. CONCLUSION

The core objective of this analysis is to identify the airline passenger satisfactory level for loyalty with their expectation. The results revealed that the food and beverage quality and service skills are essentially to improve the prediction and opinion of the airline by passenger’s degrees of fulfillment and marginally impact on their goal to frequently choosing the same airline nevertheless of not being as significant as different factors, for example, prices, timings, comfort and dependability. As the strongest correlation between the variable palatability and nutritional food through $r = .899^{**}$ with substantial value $p = .000$ along through a negative relationship between overall experience and food knowledge with a value $r = -.021$ indicates a training is need for cabin crew on food and beverage regardless with politeness. This survey also proves that the passengers are positively satisfied with their experience on food palatability and portioning. Hence an airline must focus on improving the food service skills of their cabin crews.

FUTURE WORK

This study is mainly supported with the data’s established from airline passengers of international airline through a

questionnaire disseminated to a particular group of people with their views and experience on airline, it may vary from age groups and people who travel to various destination. Hence a big data analytics must be done on receiving a huge data on satisfactory levels of experience in domestic and international airlines.

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Conflict of interest – nil

Ethical clearance – nil.

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