

## DETERMINANTS OF CONSUMER PURCHASING BEHAVIOUR FOR RICE IN DISTRICT LARKANA, SINDH, PAKISTAN

Ghulam Murtaza Surhio<sup>\*1</sup>, Hakimzadi Wagan<sup>2</sup>, G. Mujtaba Khushikh<sup>3</sup>, Habibullah Magsi<sup>4</sup>,  
G. Mujtaba Surhio<sup>5</sup>

<sup>\*1</sup> Ph.D. (In process) MS (Sindh Agriculture University Tandojam) MBA (University of Sindh) DIT (SBTE Karachi)  
Accounts Officer (Expenditure) Directorate of Finance The University of Larkano, Larkana

<sup>2,3,4</sup>Sindh Agriculture University, Tandojam, Pakistan.

<sup>5</sup>University of Sindh, Jamshoro, Pakistan.

<sup>\*1</sup>[gmsurahio@gmail.com](mailto:gmsurahio@gmail.com)

<sup>\*1</sup><https://scholar.google.com/citations?hl=en&user=oil7fNUAAAAJ>

<sup>\*1</sup>[linkedin.com/in/ghulam-murtaza-surhio-mba-finance-mphil-phd-economics-continued-09437a6b](https://www.linkedin.com/in/ghulam-murtaza-surhio-mba-finance-mphil-phd-economics-continued-09437a6b)

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Corresponding Author: \*

Ghulam Murtaza Surhio

### Abstract

The primary aim of this article was to ascertain the factors affecting the consumer purchasing behavior for rice and socioeconomic characteristics for rice intake in district Larkana, Sindh, Pakistan. One hundred (100) rice consumers were randomly selected from said district comprised of five tehsils such as Dokri, Bakrani, Naudero, Ratodero and Larkana. Chi-square formula was applied and tested to figure out socioeconomic factors with rice purchase and then same factors with rice brands. The Alfa value picked out as five percent (0.05) to compute the results either to be significant or not. Similarly, equals to or below level of 0.05 concluded as "Significant" whilst greater than 0.05 declared as "Not-Significant". The determinants such as gender with frequency of rice purchase, gender with rice bags-buy, relationships of marital status with number of rice bags, working class with rice in Kilograms, number of households with rice in Kilograms and age group with rice kilograms, each relationship of which monthly buying results evaluated as Significant. Likewise demographic factors in comparison with rice brands, encompass languages, monthly incomes and education were determined as significant. However, results revealed for age and market location in same order as not-significant. Further, discovered that higher income earning class amuses more brand quality than that of lower income earnings' class indicates purchasing power of consumers reflects buying behavior massively. Educated cluster, which paid extra care and remained vigilant to foster their kids in rice nutritional supplement than that of illiterate class, the results disclose that price is inversely proportional to demand for rice consumption so the cheaper rates should be offered to consumers. Rice brands consumption gauged in which Basmati or Saila remained people centre of attraction but consumer's budget size shifted their choice to Irri or broken rice. As far as, rice intake is examined in the study area; a large number of households preferred one time intake similarly greater part of intake determined in white rice sort type than that of others dishes. Survey carried

out regarding marketing factors in which price remained the topmost determinant for rice purchase than brand and availability of rice respectively. Multiple rice dishes eaten in the study area were surveyed and how behavior of residents reflected towards local and imported rice. In this context, Strategic policies framework proposed to promote rice cultivation and to allow microcredit to farmers, industrialists and rice entrepreneurs to encourage this trade which play vital role in boosting economy.

## INTRODUCTION

Agriculture sector is one of the biggest pillars of Pakistan economy over decades which has substantial role in economic development, contributes 18.2% to GDP, and furnishes 37% job opportunities to labor force, Food and Agriculture Organization (2023). The 62% of rural population contributes to earn from cultivation, livestock rearing and agricultural marketing. The rice is one of the major food item pertain with agriculture sector eaten around the world largely. This food item in crop season in whole world is produced about 510 Million Metric Tons out which China is on top most amongst all countries in the entire world who yields 212 Million Metric Tons annually (Statista, 2023). Whereas, in Pakistan it is second staple food and produces around 5.50 Million Tons and stands as 10th largest producing country (Wikipedia, 2023). In Sindh, Jacobabad, Larkana, Badin, Thatta, Shikarpur and Dadu district are major areas in rice cultivation. (GoP, 2023). As far as Sindh is concerned in which District Larkana is producing finer quality of rice within the delta of the Indus. In Sindh, rice is cultivated on about 2 Million acres of land with per acre yield from 45 to 50 mounds, Sindh contributes 35% of the country's rice annual production around 3.5 Million Tons. Agbogoet *al.*, (2013), they analyzed that age bracket 30-years and above consume rice largely whereas, above age of 40-years were habitual of grains and vegetables in Sub-Saharan Africa also their needs once satisfied through energy stuff they work out their dietary supplements in animal foods, dairy products, vegetables etcetera. He further examined education is the only tool which brings awareness about food items used for their healthy life cycle. Abdul (2021), Income remains elastic with expenditures utilized on multiple food items as mentioned in study percentagewise. However, in grocery, fruits and cereals of different type which when purchased by poor households big sized

population as compared to smaller one have to face budgetary constraints. Maslova *et al.*, (2020), they studied on Voronezh region and analyzed that choice and level of satisfaction impacts with the qualitative rice cereals. They examined cereals from rice had larger percentage than that of buckwheat and oats in percentage was on topmost than aforementioned cereals comparatively wheat cereals remained in intermediate mood of consumption of the area.

Many research work are found on cost benefit analysis of rice with its technical productivity in Sindh (Noonariet *al.*, 2016 and Bashir *et al.*, 2019) but a few research are available on buying behavior of rice amongst families in Sindh, Pakistan Khurramet *al.*, (2018), they highlighted consumer preference towards rice utilization changes due to level of test, its fragrance, provided that, regional choices vary due to price, quality and brand names etcetera. The percentage change in high demand for rice not only affects people health but their living standard as well as labour efficiency, productivity and significant contribution towards economic boost. Bairagiet *al.*, (2017) carried study on rice determinants of consumer choice in South and Southeast Asia, outcomes focused on seven countries of Southeast Asia regarding how rice utilized by rural and urban areas were categorized. Also, such countries population as sampling extracted as 5168 urban and 32 cities rural respectively. He determined that Bangladeshi and Indian preferred rice taste and its fragrance while Southeast Asian respondents have reacted with texture traits. At last, study reveals that purchase preference changes with the education, income and family size. Consumer choice would have remained outstanding if women found as major grocery and other food items purchaser. Nzomoi (2013), his study focused on multiple markets types, compared distant rice market access versus nearby

market to home and rice price were key determinant behind consumer buy. Oyinboetal., (2013), his study belongs to Kaduna State of Nigeria where he focused on imported rice and local rice. He examined that 75% household preferred imported rice over domestic because they focused more on quality rather price tagged on rice. Wahyudi *et al.*, (2019), the research made on Indonesia, he used Poisson Regression Analysis tool, gathered 4000 consumers sample from area of study in Jakarta province in Indonesia. Gender, age, income, occupation and education type factors added to view rice consumption behavior. The Price and promotion factors were taken to measure rice consumption rating. Wu *et al.*,(2019) survey focused on organic rice purchasing behavior in china. He defined how Chinese level of education reacted purchasing behavior for rice. The study aim was to know how the local's behavior towards organic rice exists and accordingly organic rice industrial setup established with its high returns in the market.

### Materials and Methods

The list of households collected from election commission of Pakistan office situated in Larkana which comprised of five tehsils (talukas) and further segregated the same list Union councils wise and mohalla wise in such a manner that each area may be covered equally. There are five Tehsils in District Larkana each containing as Dokri (13no: of union councils), Larkana (18 no: of union councils), Bakrani (11no: of union councils), Ratodero (09no: of union councils) and Naudero itself is a single union council. To give equal chance picked 01 union council from each tehsils.

These questionnaire formatted had three multiple section named as A, B & C each was further subdivided into total as sixteen kinds. A designed set of questions was prepared with the recommendation of supervisor and concerned committee. Section-A had demographic profile of consumers of the study area containing gender, age, education, race, marital and working class, organization, family size and level of income. Section-B titled as preference on buying-behavior of rice consumer; in this rice-intake in quantity was discussed, frequency of rice buy, choice on rice brands and market-types in order to purchase rice are put in to practice. Similarly, Section-C had

heading marketing factors encompassing rice common dishes eaten in study area, favorite rice meal, factors of great concern regarding rice buy and brands; thereafter Likert -scale has been kept in loop to analyze marketing factors. The Likert-scale includes various statements and 1 indicates “strongly disagree” and 5 is coded as “strongly agree”, while 2, 3 and 4 codes denote “strongly disagree” to “strongly agree”.

A set of questionnaire is distributed to hundred (100) respondents. Primary data is used to collect data through random sampling. The data was organized in excel form. Further frequency and percentages were calculated. Chi square test was used and hypotheses were formulated to examine the determinants of purchasing rice in the study area. Inferences were drawn on the basis of 5 % significance level. The Chi-square test regarding socio-economic characteristics was tested to evaluate the results which further bifurcated in terms of frequency and percentages as well as concluded with significant and chi-square values. The chi-square methods given as under showing tabular and Ms-excel patterns:

### Tabular Method:

$$\text{Chi-square } = \chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

$f_o$  =Observed frequency,  $f_e$  =Expected frequency

### MsExcell Methods:

P (Value)=CHITEST(D187:G190,D193:G196) (P=0.05 TAKEN)

Chi Square =CHIINV(J176,9)

Degree of freedom (DF) = (R-1) (C-1)

Whereas; R= No of rows and C= No of columns

### Results and discussion

During survey (Table 1) distributed with 90 Male and 10 Female indicates Male as the key responsible in terms of frequency of buying rice. Majority number of 60 Male in Monthly and 05 Female in

rarely were used to buy rice each month. Similarly, relationship in terms of numbers of bags with gender is concerned where 64 Male with 1-bag and 4 Female with 2-bags type rice sort bought. The fundamental reason for greater part Male respondents toward rice buy resulted as main accountable as the area had

huge population of Muslim community where Female found as Burka-wering (Hijab/parda observing). The chi-square results of Gender in terms of frequency of purchase “Not Significant” whereas in terms of number of bags declared as “Significant” respectively.

**Table 1: Relationship of Gender with frequency of Rice purchase and No: of Bags per month.**

Gender	Frequency of purchasing Rice			Total (%age)	χ <sup>2</sup> Value	P Value	Decision
	Weekly	Monthly	Rarely				
Male	11	60	19	90	4.167	0.125	Not Significant
Female	1	4	5	10			
	No of Bags purchased				6.881	0.032	Significant
	1-Bag	2-Bag	Others				
Male	64	15	11	90	6.881	0.032	Significant
Female	3	4	3	10			

Likewise, (Table 2) where marital status of association with rice bags purchased is discussed where 5 single with 2-Bags, 60 Married with 1-bag and 3 widowers with 1-bag respectively were the majority numbers of respondents in terms of buying

with bags of different type. However, majority of 79% married class in contrast with others category were associated in terms bags intake. Although, outcome of the (Table 2), carried out through chi-square test, stood as “Significant”.

**Table 2: Relationship of Marital status with No of bags purchased per month.**

Marital Status	No of Bags purchased			Total (%age)	χ <sup>2</sup> Value	P Value	Decision
	1-Bag	2-Bag	Others				
Single	3	5	2	10	16.52	0.011	Significant
Married	60	10	9	79			
Widow/widower	3	2	1	6			
Divorced	1	2	2	5			

Moreover, (Table 3) incorporates association of various variables with rice quantity in (Kilograms) purchased each month. The rice mass in (Kilograms) versus in category of working status; 15 employed preferred 5-Kg and 48 unemployed of 5-Kg remained as bulk numbers than rest quantities. Although, 68% massive volume of rice buy found in unemployed than employed case.

57% buying occurred in family size series of (1to 3). As far as age group comparatively rice purchase is connected 40 repliers (< 22 years) preferred 5-Kg, 11 repliers (22-32 years) preferred 5-Kg, average 3 repliers (33-43) in all Kg type excluding 10-Kg, 4 repliers (44-54 years) preferred 5-Kg and 5 repliers (55-65 years) preferred 5-Kg type rice quantity. As whole, 50% of responders pertains with (<22 years) age group and vertically the 5-Kg type is chosen as utmost preference than rest of all. Therefore, the decisions regarding chi-square test conducted were concluded as “Significant” against all variables i.e working class, family size and age groups.

In the same way, family sizes multiple ranges of 45 consumers to 5-Kg in range (1 to 3), 11 consumers to 5-Kg in range (4 to 6), 6 consumers to 15-Kg in range (7 to 11) and 4 consumers to 5-Kg in range (above 11) respectively were concluded as majority numbers of rice procure to home as classified above. Thus,

**Table 3: Relationship of Working Class, Family size and age groups with Rice (in Kg) purchased per month.**

Variables	Rice purchased in (Kg)				Total (%age)	X <sup>2</sup> Value	P Value	Decision
	5-KG	10-KG	15-KG	OTHERS				
Working status:								

Employed	15	2	8	7	32	10.255	0.017	Significant
Unemployed	48	7	10	3	68			
Family size:								
1 to 3	45	2	5	5	57	24.875	0.0031	Significant
4 to 6	11	1	4	1	17			
7 to 11	3	4	6	3	16			
Above 11	4	2	3	1	10			
Age group:								
< 22 Years	40	2	5	3	50	22.042	0.037	Significant
22-32 Years	11	1	5	1	18			
33-43 Years	3	2	3	3	11			
44-54 Years	4	3	3	1	11			
55-65 Years	5	1	2	2	10			

In (Table 4) the association of demographic factors with rice brands is highlighted with test conducted through chi-square. Results revealed that rice brand intake with spoken language in the study area analyzed that majority numbers of 38 Sindhi preferred Irri-09, 07 Urdu preferred Rosi Karnal (D-98 or Johi) and rest of languages as formatted below 1 Punjabi and 3 Balochi language speaking chosen to intake Rosi Karnal brand type. As Larkana district is Sindhi language speaking community so majority of consumers 80% existed in it comparatively other languages. As far as brands' preferences intake is concerned, the Irri-09 rice brand intake has high number of consumption up to 39 in all languages and such a big brand-preference difference with Irri\_09 observed because of low income earned class in the study area. Results in the same manner concluded as significant. Similarly, monthly incomes of the residents mapped with rice brands; 7 consumers from income range <Rs.15, 000 in Irri-09, 24 consumers from income-range 15000 - 30,000 in Irri\_09, 09 consumers from income-range 30,001-45,000 in Rosi Karnal and 07 consumers from income range>45,000 in Rosi Karnal respectively remained their choice of interest. However, majority of them chosen to intake Irri-09 brand type had 37 consumers and having counted the percentage the huge percentage 45 resulted with 15,000-30,000 income-ranges' group. The outcome in this category also remained significant. Although, survey was held randomly and touched almost all the Tahsil but having these figure examined the earning capacity of multiple groups towards buying power reflects according to their income and further it recognizes

choice vary from one range of income to another one. That means small income-range (poor family) differs to purchase rice quality compared to high income range (rich family). The identical choice of rice brands needs to be promoted in this regard to avail equal textured traits in rice. In the same way, education sector is considered as important factor was scaled with rice brands and results indicates that bulk records 42 illiterate class were consuming broken rice, 2 of primary class to each Rosi and broken rice type, 2 of middle class to Irri-09 and 11 consumers of Matric and above education level, went with other rice category type. The literacy rate in Larkana is 35% is not up to the mark and in background of our study, there needs awareness regarding rice production to peasants and consumers. In addition, it is only the level of education that change mind set of consumers in buying qualitative rice; especially parents to look after their kid's nutritional supplements in perspective of rice that nourishes carbohydrates, calcium & iron. The conclusion remained significant in this connection. Provided that, relationship of rice brands with market locations recorded. The adequate numbers of respondents with access to market locations were 29 (Irri-09) with retailers, 18 (Irri-09) with whole sellers and 5 (Irri-09) with minimarkets respectively, purchased. In total Retailers markets had adequate access of (62%)regarding rice brands, whereas, in total the large numbers 52 buyers associated with (Irri-09). Such a large percentage falls under retailers category due to the reason that retail outlets remain easy to approach and rice availability and rest of second

largest goes out to whole sellers which occurred due to discounted price, quality features and brand consciousness of locals for rice-buying. Similarly, Market wise access value in versus with brand remained non significant one. Subsequently, gender wise determinations in comparison with rice brands which specify that male had maximum 47 (Irri-09) & female had maximum 5 (Irri-09), showing gender

wise rice-buy. Similarly, viewing aggregate the majority percentage was fallen with 52% with Irri-09 brand. A huge volume liked local and low quality brands either due to big family size or low-income based houses constraints to divert their choices else a good and fragrant quality rice ever been the choice of almost everyone in the area of study. Hence results evaluated as not- significant one.

**Table 4 Relationship of demographic factors with rice brands.**

Variables	Rice brands				Total (%)	χ <sup>2</sup> Value	P Value	Decision
	Punjab Super Karnal Basmati/ Saila	RosiKarnal/ D-98/ Johi	Irri-09	Broken/ Other Rice				
<b>Language:</b>								
<i>Sindhi</i>	3	12	38	27	80	30.175	0.0026	Significant
<i>Urdu</i>	1	7	1	1	10			
<i>Panjabi</i>	0	1	0	0	1			
<i>Balochi</i>	0	3	0	5	8			
<i>Any Other</i>	0	1	0	0	1			
<b>Monthly Income:</b>								
<i>Less than Rs.15000</i>	3	2	7	6	18	30.674	0.0003	Significant
<i>Rs.15000-30000</i>	5	2	24	14	45			
<i>Rs.30001-45000</i>	7	9	3	3	22			
<i>Above 45000</i>	3	7	3	2	15			
<b>Education:</b>								
<i>Illiterate</i>	2	3	15	42	62	30.344	0.0004	Significant
<i>Primary</i>	1	2	1	2	6			
<i>Middle</i>	0	0	2	0	2			
<i>Matric n Above</i>	7	8	4	11	30			
<b>Market Location:</b>								
<i>Retailers</i>	6	7	29	20	62	4.925	0.5535	Not Significant
<i>Whole sellers</i>	3	1	18	7	29			
<i>Minimarkets</i>	2	1	5	1	9			
<b>Gender:</b>								
<i>Male</i>	10	7	47	26	90	1.766	0.6223	Not Significant
<i>Female</i>	1	2	5	2	10			

During the study survey five questions were encompassed in questionnaire regarding Likert\_scale (closer to 1 is definitely disagree, closer to 5 is definitely agree).The outcome through analysis represents standard lies toward the mid-score (Table-5).Moreover, amongst all factors people preferred the topmost as price factor during rice purchase, provided that, quality brand stood at second top

choice and rice availability remained on third numbers of resident of Larkana. Similarly, as we exist in underdeveloped country where poverty is on peak, so, price usually remains in mind before we buy anything. Quality brand stood at second rank and consumer mark their opinions that pocket budget restrict them to buy Basmati-ahigh quality brand.

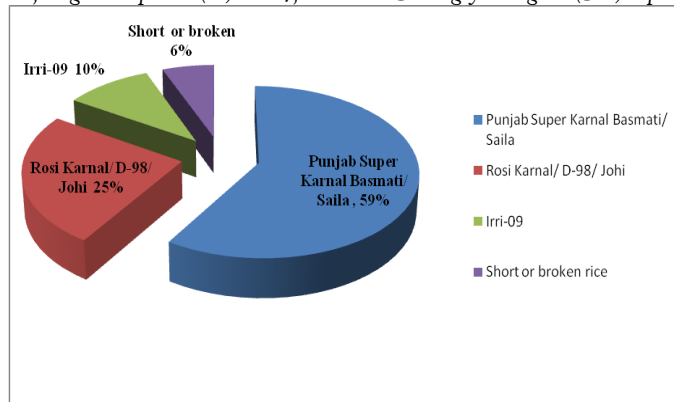
Further, concluded that most of consumers buy from nearest to their residence stores and retailers.

Table 5: Means of consumer preferences on marketing factors

Variables	S.No	Marketing Factors	Scale					TOTAL	Mean	SD
			SA	A	N	D	SD			
Preference	1	Price is important factor for me while purchasing rice	52	21	5	8	14	100	3.01	2.768
	2	I often focus on Brand when I buy rice	45	12	10	12	21	100	2.61	2.522
	3	Any Advertisement influence for buying rice	4	26	36	29	5	100	1.57	1.619
	4	Packaging of rice attracts to buy rice	1	9	10	38	42	100	1.49	1.192
	5	Availability of rice in your nearest market	40	7	10	22	21	100	2.46	2.379

(To take a quick look on (Table 5) the codes adopted as Strongly Agree (SA) equals to 5, Agree equals (A) to 4,

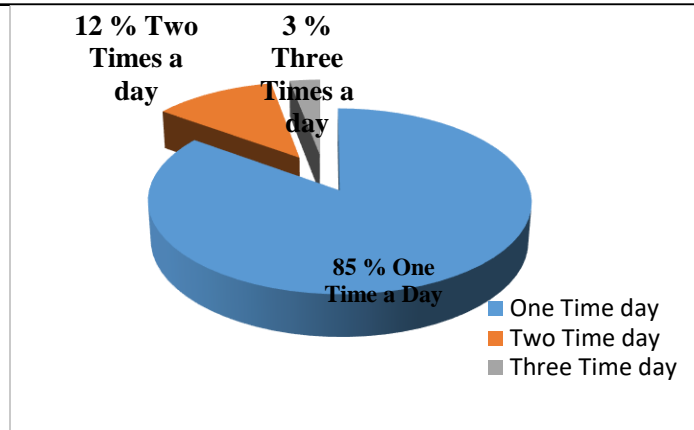
Neutral (N) equals to 3, Disagree (DA) equals to 4, and Strongly disagree (SD) equals to 1)



Rice Brands  
Figure 1: Rice brands

Below Figure-1 In the survey-area of Larkana District, Sindh multiple brands of rice examined and these rice brands are shown with their percentages of consumption locally and such brands are named as Pujab Super Karnal Basmati or Saila (59%), Rosi Karnal or D-98 Or Johi (25%), Irri (09%) and Short

Rice or Broken Rice (6%) respectively. Although, rice that is mostly eaten at large scale of 59% is Punjab Super Karnal or Saila which is good in quality and size but not economic one but people prefer it largely compares to other brands.

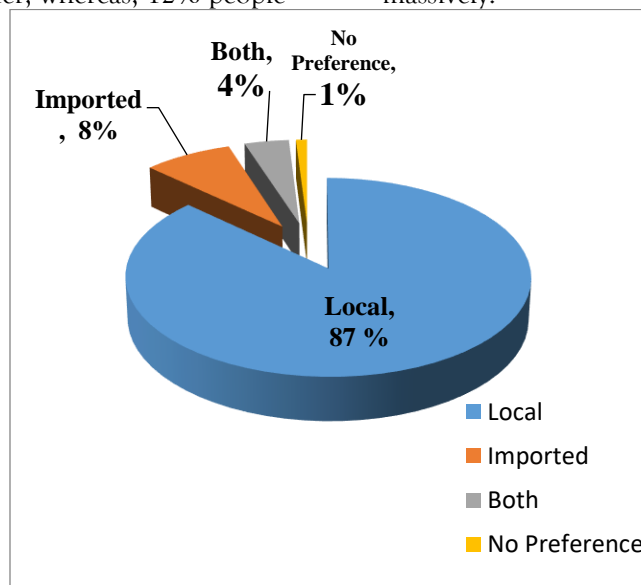


Consumption pattern of eating rice

Figure 2: Frequency of eating rice

Rice is considered as major food item and frequently eaten item in study area. According to (Figure-2) which shows that 85% of rice is eaten on once a day basis either in lunch or dinner, whereas, 12% people

preferred to intake twice a day and a very few of 3% intakes thrice per day. In Larkana district of Sindh, rice normally taken in supper as white rice dish massively.



Rice Preference

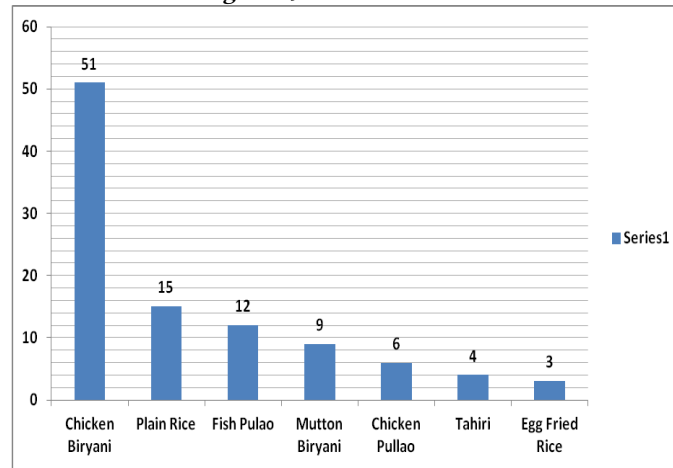
Figure 3: Preferred origin type of rice

Furthermore, results regarding rice preference as shown in figure-3 below out of 100 respondents 87% cluster liked to buy locally branded rice this happens due to effortless accessibility of rice as well as locally brands are cheaper comparatively imported rice. The outcome also reveals that 8% consumes imported rice due to enjoy absolute quality and taste of rice

and price had never been matter for those groups. Whilst, only a few selected to enjoy qualities of both local and imported rice i.e. 4%. Although, cost of rice is also major determinants for them when they buy it once purchasing power allow only then 4% consumers enjoy imported & local attributed rice. Thus, 1% had no choice.

Favorite rice dishes

Figure 4: Favorite rice meals

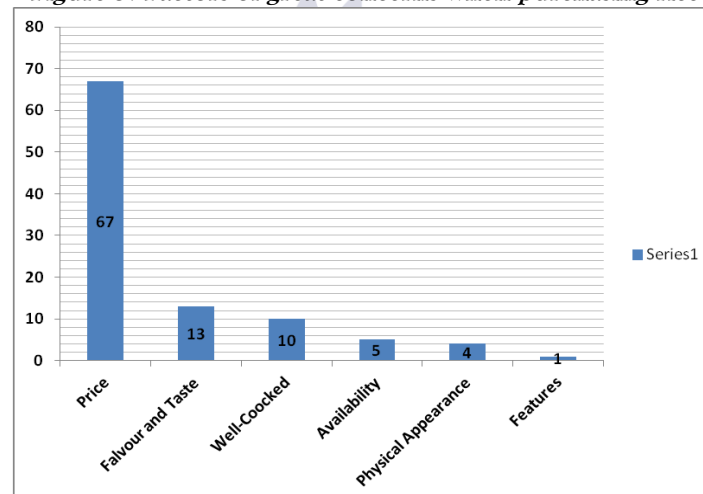


Choices vary from one person to another one. In this survey of favorite rice dishes, it was analyzed and illustrated in below (figure-4) that the majority of 45% repliers were of Chicken Biryani

eater, thereafter, 15% falls in plain rice and 12% went for fish Pulao. Remainders, a few in that order were Mutton Biryani (9%),Chicken Pulao (6%), Egg Fried Rice (3%) and Tahiri (4%).

Major traits of buying rice.

Figure 5: Factors of great concerns when purchasing rice



In (figure 5) it is shown that during we purchase rice from market what factors attract us more to buy rice various brands. Responders picking rice quality, gradation and taste are assessed on their judgment and observations. From disseminated questionnaires it was worked out in my survey locales that greater part of choice in which 67% were of price conscious, 13% were of flavor and taste & 10% well-cooked attributes; rest of had picked and focused as 1% features, 5% availability and 4% to physical appearance. This was also observed that 67% went for price because of budgetary issues.

SUMMARY AND CONCLUSION

Study concluded that socio economic characteristics such as gender, age, qualification, family size, income level, working class, marital status and languages were the major determinants of purchasing behavior of rice. We found that there is critical connection between education and purchasing behavior of rice in region Larkana. We also discovered that there is significant association in between incomes and purchasing behavior of rice of the respondents. It is

clear that food item costs are exceptionally high in Pakistan including rice. Study additionally infers that a family size is likewise significant determinant of buying rice. The outcome concerning with marketing factors was assessed that individuals focus more on cost rather notice, quality or accessibility. Similarly, keeping in to account all rice dishes meal the most preferred and eaten feast was chicken biryani. Majority number of consumer used to intake locally cultivated rice comparatively imported rice. Suppliers of rice should focus on age, qualification, family size, income level, working class, marital status and languages of consumers as major determinants for forecasting their demand for rice in the market. In the light of findings that there is noteworthy relationship between education and purchasing behavior of rice, education provision should be major policy consideration for the Government as it creates awareness regarding dietary supplements amongst citizens. Government should ensure availability of rice at cheaper prices so that low income class should have access to quality and nutritious food. Due to increasing level of population and keeping in view issues of food security in Pakistan, Government should focus on increasing rice yield so that developing necessities of populace with respect to food can be met without any problem.

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