

## **DEMOGRAPHIC FACTORS INFLUENCE ON CUSTOMER ACCEPTANCE OF VINEGAR PRODUCTS IN KLANG VALLEY, MALAYSIA**

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**Abstract:** *Vinegar is mostly use all around the world for food preservative or condiment, and sometimes it is also used as medicine and cleaning agent. Most of the vinegars sold in Malaysia market were either synthetic, natural, locally produced Attap Seed (Nipa) or imported natural vinegars. In order to determine the demographic factors influencing the customer acceptance of vinegar products, a survey method by using a structured questionnaire was used as a tool for data and information collection to study the type, brand and frequency of usage of vinegars and quantity, quality and type of packaging material of vinegars. A total of 69 respondents of stratified random sampling respondents filled up the questionnaire in selected location around Klang Valley. The type and usage of the vinegar product is significantly depending on the respondent demographic factor especially on races and religion as shown by Pearson Correlation Chi Square at  $p \leq 0.00$ . Packaging of a new product is also an important factor in accepting vinegar product by customer as shown by Pearson correlation Chi square test value at  $p \leq 0.05$ . Element of packaging of significant is bottling, quality of material and type of material. This finding is imported in development of vinegar product because we have to take into consideration of the religion and races of our potential customer. Packaging is also another important factor to be considered to ensure successful product marketing since currently we are in process of commercializing our own vinegars from local fruits in order to help eradicate the poverty of our orchards farmers.*

**Keywords:** demographic factors, customer acceptance, Klang Valley, vinegar

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## Introduction

Traditionally vinegar acts as preservative or condiment of food (Tan, 2005). Vinegar also is used in pickling meat, fish, fruits, and vegetables and in creating marinades, dressings, and other sauces. However, the production of natural vinegar is unfavourable among the manufacturers in Malaysia. Many of the producers refuse to produce natural vinegar due to several reasons such as the availability of the substrates and long fermentation time (6-8 weeks). Moreover, the price of synthetic vinegar is still much lower than natural vinegar in the local market. Natural vinegar production has only been practised as a cottage industry in many states in Malaysia using various types of agro-based products and by-products as substrates such as coconut sap, nipah sap and matured fruit juice (Othman *et al*, 2014).

Nevertheless, the trend in consuming natural vinegar in Malaysia is on the increase now due to health consciousness. However, mostly imported vinegars such as apple cider, date and pomegranate vinegars are readily available in the market (Karim *et al*, 2011). Currently, our team has successfully developing economically viable natural fruit vinegars from our local fruit juices of *Nephelium lappaceum* and *Lancium domesticum* (Mokhtar *et al*, 2016).

Demographics are the collection of data regarding a specific population. It is frequently used as a business marketing tool to determine the best way to reach customers and assess their behavior. Segmenting a population by using demographics allows companies to determine the size of a potential market. The use of demographics helps to determine whether its products and services are being targeted to that company's most important consumers. (<http://www.investopedia.com>). It could be expressed as age, sex, education level, income level, marital status, occupation, religion, birth rate, death rate, average size of a family, average age at marriage.

Since the new vinegars product will be entering the market soon in Malaysia, surveys on factors influencing the customer acceptance of the new product has to be determined. The factors that we are focusing on in this study are the demographic factors and also packaging factors. Our focus is in Klang Valley, Malaysia since that will be our main target market. In addition, the consumers in this area had many choices of vinegar product in the market compared to other location.

Hence the objectives of this study are: 1. to study the demographic factors of age, gender, education level, race and religion influence on type, brand and frequency of usage of vinegars in Klang Valley, Malaysia and 2. to study the demographic factors of age, gender, education level, race and religion influence on quantity, quality and type of packaging material of vinegar.

## Research method

A survey through questionnaire was applied as the core methodology to acquire raw data from respondents which were distributed to a sample size in Klang Valley, Kuala Lumpur by using the stratified randomized sampling. Total of 69 respondents who visited our exhibition booth answered the questionnaires. Descriptive analysis was conducted to analyze the demographical profiles of the respondents which consist of age, gender, marital status, education level, race,

religion, occupation and current income. The demographic profiles were recorded and expressed in frequency and percentage. The influence of the demographic factors such as race, religion, occupation and income of the respondents against the type, brand and frequency of use was measured using Pearson Chi squared 2-tail test of  $p \leq 0.05$ . The influence of race and religion on types of vinegar and the influence of religion on frequency of use were determined by Pearson Chi squared. Demographic factors such as age, gender, education level, race and religion influencing on packaging quantity, quality and material were also determined by Pearson Chi Squared.

## Results and discussion

Table 1 shows the demographic information for all 69 respondents participated in this study. All respondents were taken from Klang Valley, Malaysia. The average age of the respondents is 33 years old. Out of 69 respondents, 31.9% respondents were male, 68.1% were female, 53.6% were married and 46.4% were single. For education level, 1.4% respondent indicated that they have never go to school, 21.7% went to secondary school, 1.4% have secondary certificates, 69.6% with university qualification and 5.8% with others or technical qualification. Most of the respondents in this study with frequency at 89.9% are Malays, the second highest is Chinese at 5.8%, others at 2.9% and lastly, Indian at 1.4%. Majority of respondents were Muslim with frequency at 91.3%, Christians at 5.8%, Hindu at 1.4% and others at 1.4%. Majority of them work in public sector with frequency at 53.6%, 15.9% were unemployed, 14.5% worked in private sector, 10.1% worked in other categories and only 5.8% are self-employed. Majority of their current income were in the range of RM 2001-RM 4000 (43.9%), 33.3% at the range less than RM 2000, 20.3% in the range of RM4001-RM6000 and only 2.9% of respondents earned above RM 6001.

**Table 1: Demographic distribution of respondent background expressed in frequency and percentage**

VARIABLES		Frequency (no)	Percent (%)
Age	18-24 years	17	24.6
	25-34 years	33	47.8
	35-44 years	10	14.5
	45-54 years	6	8.7
	55 and above	3	4.3
Gender	Male	22	31.9
	Female	47	68.1
Marital Status	Married	37	53.6
	Single	32	46.4
Education Level	Never to school	1	1.4
	Secondary	15	21.7
	Certificate	1	1.4
	University	48	69.6
	Others	4	5.8

Race	Malay	62	89.9
	Chinese	4	5.8
	Indian	1	1.4
	Others	2	2.9
Religion	Muslims	63	91.3
	Christians	4	5.8
	Hindu	1	1.4
	Buddha	1	1.4
Occupation	Private Sector	10	14.5
	Public Sector	37	53.6
	Self-employed	4	5.8
	Unemployed	11	15.9
	Others	7	10.1
Current Income	Less than RM2000	23	33.3
	RM2001-RM4000	30	43.5
	RM4001-RM6000	14	20.3
	RM6001 and above	2	2.9

The type of vinegar used among the respondent is influence by Race (0.007) and Religion (0.00), the Brand of vinegar is influence by the Occupation (0.025) and Income (0.029) of the respondent, while the frequency of usage of vinegar is influence by Religion (0.002) as shown in Table 2.

**Table 2: Pearson Chi-Square Coefficient between demographic factors against knowledge on Type, Brand and Frequency usage Vinegar**

Factors	Type of Vinegar	Brand of Vinegar	Frequency for usage of Vinegar
Race	0.007*	-	-
Religion	0.000*	-	0.002*
Occupation	-	0.025*	-
Income	-	0.029*	-

\*Chi-square coefficient is significant at 0.05 level (2-tailed)

Based on Table 3, most of Klang Valley respondents prefer natural fruit vinegar compared to the artificial vinegar especially among the Malay respondents whereby 37 out of 69 respondents of them prefer the natural fruits vinegar. The Pearson Chi Square analysis of the influence of Race (0.07) as the determining factors of making decision on what type of vinegar to

choose between, artificial, natural or both is significant below  $p \leq 0.05$  for this group of respondents during this study as shown in Table 4.

**Table 3: Frequency of choice preference among the Races for artificial, natural and both type of vinegars in this study**

Races	Artificial Vinegar	Natural Vinegar	Both Artificial and Natural	Total
Malay	10	37	0	47
Chinese	0	2	1	3
India	0	1	0	1
Others	0	1	0	1
Total	10	41	1	52

**Table 4: Chi-Square Tests on the influence of Races on the type of vinegar chosen by respondents in this study**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.567 <sup>a</sup>	6	.007
Likelihood Ratio	7.891	6	.246
Linear-by-Linear Association	2.080	1	.149
N of Valid Cases	52		

From Table 5, most of Muslim respondents in Klang Valley prefer the natural fruit vinegar compared to the artificial vinegar whereby 38 of them prefer the natural vinegar compared to only 10 who preferred artificial vinegar. The Pearson Chi Square analysis of the influence of Religion as the determining factors of making decision on what type of vinegar to choose between, artificial, natural or both (0.00) is significant below  $p \leq 0.05$  for this group of respondents during this study as shown in Table 6.

**Table 5: Frequency of choice preference among the Religion for artificial, natural and both type of vinegars in this study**

	Artificial Vinegar	Natural Vinegar	Both Artificial and Natural	Total
Muslim	10	38	0	48
Christian	0	2	0	2
Hindu	0	1	0	1
Buddha	0	0	1	1
Total	10	41	1	52

**Table 6: Chi-Square Tests on the influence of Religion on the type of vinegar chosen by respondents in this study**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	52.793 <sup>a</sup>	6	.000
Likelihood Ratio	11.238	6	.081
Linear-by-Linear Association	6.815	1	.009
N of Valid Cases	52		

From Table 7, out of 69 respondents in Klang Valley, 28 of the Muslim respondents admitted that they use vinegar several times a week, 4 respondents used vinegar daily, 9 respondents only using vinegar once a week and 7 respondents not sure on the frequency of usage per week. The Pearson Chi Square analysis of the influence of Religion (0.02) as the determining factors of frequency of usage of vinegars per week is significant below  $p \leq 0.05$  for this group of respondents during this study as shown in Table 8.

**Table 7: Frequency of usage of vinegars per week according to different religion among the respondents in this study**

	Usage of Vinegar				Total
	Everyday	Once a week	Several times a week	Others	
Muslim	4	9	28	7	48
Christian	2	0	0	0	2
Hindu	0	0	0	1	1
Buddha	0	0	0	1	1
Total	6	9	28	9	52

For quantity of packaging for vinegar, only age factor is insignificance indicating that other factors such as gender (0.027), education level (0.00), race (0.00) and religion (0.00) have their own opinion and choice on the size of the packaging. As for quality of bottling *i.e.* transparent or translucent, race (0.02) and religion (0.01) could be the determining factors. In term of material types *i.e.* plastic or metal, most factors (0.00) showed significance preferences and opinion except for gender (Table 9).

**Table 8: Chi-Square Tests on influence of religion on the usage of vinegars per week among the Respondents in this study**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.759 <sup>a</sup>	9	0.002
Likelihood Ratio	16.576	9	0.056
Linear-by-Linear Association	0.633	1	0.426
N of Valid Cases	52		

**Table 9: Pearson Chi-Square Coefficient analysis on demographic factors of age, gender, education level, race and religion influence on quantity, quality and type of packaging material of vinegar, (n=69).**

Factors	Quantity of vinegar	Quality of material	Type of material
Age	-	-	0.004*
Gender	0.027*	-	-
Educational Level	0.000*	-	0.000*
Race	0.000*	0.002*	0.000*
Religion	0.000*	0.001*	0.000*

\*Chi-square coefficient is significant at 0.05 level (2-tailed)

## Conclusion

The results indicate that the demographic factors could play important roles in customer acceptance of vinegar in Malaysia. Race and religion could influence the type of vinegar purchased by the customers. Educational level and income influence the preference of vinegar brand. Religion plays an important part in the frequency of usage. Most of the respondents in Klang Valley preferred vinegar from natural fruits. Their knowledge of natural fruit vinegars could be due to their exposure with apple cider, dates vinegar which is readily available in the supermarket in Klang Valley. Most of the respondents especially the Muslim concern on the Halal status of natural fruit vinegar of local fruits. In designing the packaging of vinegar, we have to take into consideration the demographic factors of our target customer as the result shown that the preferences and opinion of the packaging elements are highly influenced by the demographic factors such as age, gender, education level, race and religion. This study could influence our decision on the marketing, branding and packaging of our very own vinegar products.

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