

A STUDY OF FACTORS WHICH INCREASE OR DECREASE LEVEL OF FOOD PURCHASING IN RELATION TO TRANSPARENT FOOD PACKAGING:

A SURVEY IN KARACHI

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ABSTRACT

This research examines the influence of gender, age and weight on the level of purchases of transparent packaged food. Transparent packages allow potential buyers to observe the food items; these external cues can increase or decrease the number of purchases of transparent food packages depending upon the factor which is dominant; salience effect or monitoring effect. This research is based on the research conducted by Xiaoyan Deng and Raji Srinivasan who established that transparent packaging is most effective when monitoring effect is low. The factors identified which lowered monitoring effect were namely; smaller food size and food attractiveness. This research was conducted in the context of Karachi's population. In the first hypothesis the research assumed that females will purchase more transparent packaged food than males. This hypothesis was rejected because when independent sample t-test was applied to it, the P value generated was 0.084 which was higher than level of significance, 0.05. In the second hypothesis this research assumed that younger people will purchase more transparent packaged food than older people. This hypothesis was also rejected because when independent sample t-test was applied to it the P value generated was 0.07 which was higher than the level of significance, 0.05. The third and last hypothesis assumed that people with lower weight will purchase more transparent packaged food items than people with higher weights. This hypothesis was proved and accepted because when independent sample t-test was applied the P value generated was 0.037 which was less than the level of significance, 0.05. Therefore, it can be concluded from this research that level of purchases of transparent packaged food was neutral to gender and age but was affected by weights of people in Karachi.

KEYWORDS: Transparent Food Packaging, Level of Food Purchases, Karachi, Salience Effect, Monitoring Effect

INTRODUCTION

Transparent packaging is an area of marketing which is yet to be exploited and tapped to its full potential in Karachi's food market. To get an insight of the transparent food packaging's popularity in Karachi some of the famous super mart's official Facebook pages were observed. After observing some of the active bakeries' and super mart's Facebook pages it was observed that transparent food packaging although not absolutely absent is not very common. Some of the transparent food packaged products found on super mart's selves were frozen food's packages for example, McCain's French fries, hash browns, southern fried spirals; Atlantic Salmon, Young's Admiral's Pie and Mariner's pie (partially transparent); Star Buck's products; fresh vegetables; Bakery items like Chips, Biscuits, toasts, brownies etc; Homemade food items like Farid's Grab and goes salads etc.

It should be noted that this list is just a general overview and not an exhaustive list of all transparent packaged food items available in Karachi's market and Super Mart A.

Marketing plays a significant role in increasing the profitability of companies and businesses in Pakistan which is evident from the huge spending on marketing and promotional activities in Pakistan, for example the total advertising expenditure was 32.06 billion in the FY 2010-2011. It must also be noted that only 2 billion was allocated to outdoor advertising, this implies that outdoor advertising is not a popular means of promotion and advertising in Pakistan. (**Media Advertising Spend, 2011**). Outdoor advertising like point of sales hold of a lot importance because the consumers are in direct contact with product therefore packaging can prove to be a beneficial means of promotion.

This research's topic is "A study of factors which increase or decrease level of food purchasing in relation to transparent packaging: A survey in Karachi". As the name suggests, this research is aimed at studying and exploring the marketing potential of transparent packaging.

The marketing potential of transparent food packages will be measured with respect to various factors (independent variable) by the indicator, proportion of transparent packaged food purchased out of total food items purchased (dependant variable). This research identifies three factors (independent variables) namely; gender, age and weight which can increase or mediate the level of purchase of transparent packaged foods in Karachi. However, these three factors are not the only factors which can affect the marketing potential of transparent packaged food in Karachi there could be many, but this research due to time constraint is focused on only three factors.

Two very important terminologies, which have also been distinctly identified as the keywords of this research are salience effect and monitoring effect, affect food consumption and purchase level of transparent packaged foods. Monitoring effect reduces the food consumption and level food purchases. In one research it was established that monitoring effect is greater in visually large foods because the larger size of the food creates a perception in the minds of the consumer that their consumption is more than their actual consumption. (**Deng & Srinivasan, 2013**) This implies that the monitoring effect is stronger in people whose motivation to control food consumption is stronger, mainly weight conscious people. The second effect is the salience effect, this effect when comes into play motivates consumption and increases level of purchases because the visual cues from transparent food packages stimulate hunger increasing desire to consume the food followed by increase purchases or purchase of the transparent packaged food item.

To sum up, when monitoring effect is dominant the food purchases and consumption will be low and when salience effect is dominant food purchases and consumption will be high. This research identifies three factors as aforementioned across which these effects can vary which are age and gender, age and weights of people. However it must be noted that following the research pattern of the research conducted by Xiaoyan Deng and Raji Srinivasan weight consciousness will be the base of judging monitoring effect's strength, it is assumed in the research that weight consciousness may vary across gender, age and weights of people in turn affecting food purchase levels; this is the reason that a weight consciousness scale is included in the questionnaire.

Three hypotheses will be tested in this research, one for each factor. The first hypothesis will study how males' and females' purchase pattern differ owing to their differing level of weight consciousness which in turn will increase or decrease the strength of the monitoring effect. The second hypothesis studied in this research is age which could affect the marketing potential of transparent packaged food item. This hypothesis is based on the common perception that people

tend to get more weight conscious with age because of age related illness (heart attacks etc). If the result of the research confirms age as the hindering factor in food purchases food production companies in order to maximize the benefit of transparent packaging could change the perception of the consumer by creating an image of their product as a low calories and healthy product. The third hypothesis is aimed at studying the relationship between weights and the level of purchase of food items in transparent packaging. The goal of this hypothesis is to study if higher weights can reduce the marketing potential of transparent packaged food. If so, can be concluded that people with higher weights have a higher monitoring effect and thus will reduce their purchase and consumption, therefore food's which are perceived to be high in calories should be packaged in opaque packaging rather than transparent packaging.

The results and conclusions from this research could help marketer's gain useful insights and information on what are some of the issues which prevent transparent packaging from being fully effective and the effectiveness of transparent packaging in food market of Karachi.

However, that monitoring effect is not the only factor which can negatively affect the marketing potential of the transparent food packaging in promoting the sales of the product. Consumer perception shaped by previous research done on disadvantages of transparent packaging which makes penetration of ultraviolet light easier damaging the food's nutritional value can hinder the sales of transparent packaged food. (Fraser, 2012)

LITERATURE REVIEW

From Xiaoyan Deng & Raji Srinivasan's "When Do Transparent Packages Increase (or Decrease) Food Consumption?" Journal of marketing, Vol. 77 (September 2013), 104-117

This research is aimed at finding when is transparent packaging most effective in increasing food consumption. This research begins with introducing two factors namely; salience and monitoring effect, which come into play when transparent packaging is used. Salience effect increases transparent package's food consumption because the external cues of food stimulate hunger thus increasing food consumption. Monitoring effect decreases food consumption because as the name implies, the ability of one to see the quantity of food one is consuming enables one to monitor the amount of food one is consuming. Thus if one is weight conscious and if he/she perceives that he/she has eaten more than he/she should have he/she stops himself/herself from consuming more.

The hypotheses stated and tested in this research are as following:

- **H1:** Consumption of small, visually attractive food is greater from a transparent package than from an opaque package.
- **H2:** Consumption of large, visually attractive food will be lower from a transparent Package than from an opaque package.
- **H3:** Consumption of vegetables from a transparent package will be lower than from an opaque package.

This hypothesis implies that small food's monitoring effect is weaker than the salience effect because small food is considered less fattening. Moreover, this hypothesis implies that if the food item is visually attractive then the salience effect strengthens, increasing food consumption. The first hypothesis was tested using two small food items namely; Cheerios and Froot Loops, the two food items are identical except for their color. The experiment was conducted on 123 undergraduate students out of which 42 were females. The subjects were told that they would evaluate the

advertisements which ran during the famous show “The Office” and the subjects were told that the snacks given to them were a part of creating a natural environment for the experiment. After the evaluation was done it was found that the consumption of small and visually attractive was 58% more from transparent packaging than from opaque packaging. On the other hand, consumption of large and visually attractive (M&M cookies) food was 28% more from opaque packages than from transparent packages.

This result was explained by the researchers through salience and monitoring effect. They concluded that the salience effect dominated the consumption of small, visually attractive food in transparent packaging and monitoring effect dominated large, visually attractive food in transparent packaging.

The third hypothesis was conducted on 65 undergraduate students of which 27 were females; each subject was given a bag with 12 baby carrots weighing 113 grams. The researchers concluded that consumption from transparent package was lesser than consumption from opaque packages; the reason being that the vegetables like carrots are visually not as attractive as the other food items thus the salience effects weakens and the monitoring effect strengthens.

From Clemson University Food Safety Extension Program’s “Describe the different ways that food spoils”, Foodsafetysite.com, (2012)

This article revolves around the concept of photodegradation which is a term used to describe the phenomena when exposure of food to light results in food’s deterioration. Pigments, fats, protein, and vitamins are sensitive to photodegradation and can result in “discoloration, off-flavors, and vitamin loss” in the food. (Fraser, 2012) Light is described in the article as “a form of radiant energy that is usually described as wavelength. The visible light we see is only a small part of the vast spectrum of electromagnetic energy. This spectrum includes: gamma rays, X-rays, ultraviolet rays, visible light, infrared rays, and radio waves. “.

This article highlights the fact that if transparent packaged food is placed under fluorescent light and could result in photodegradation of the aforementioned sensitive constituents of the food. The article mentions some common sources of light which a transparent packaged food may be exposed to which are namely; sunlight outdoor (Store Fronts, Windows, and Skylights), incandescent lamps (Coolers, Storage Facilities), fluorescent lamps (Food Processing Areas, Display Cases, Food Preparation Areas) etc. When the transparent package is exposed to the light there are four possibilities namely; it gets reflected, the package absorbs it or it passes through the food.

The article concludes by talking about a few factors like oxygen, temperature and water which if taken care of can increase the shelf life of the food. High Exposure to oxygen if they can cause autoxidation, development of aerobic bacteria, and catalyze food reactions via enzymes. For temperatures in the range of 50 Fahrenheit and 100 Fahrenheit every temperature increase of 18 Fahrenheit will double the speed of the chemical reaction. Lastly, free water can increase the rate of chemical reactions. When designing the packaging these factors should be kept in mind.

Link:<http://www.foodsafetysite.com/educators/competencies/general/microbiology/mic6.html>

From Terri William’s “Clear Plastic Wrap and Food Safety”, LiveStrong.com (January 28, 2014)

This article informs people about the disadvantages of using clear (transparent) plastic wrap to cover food from a medical perspective. Terri William states that according to some researches chemicals found in small quantities in these clear plastic wraps can lead to a number of medical conditions. William then states specific findings of researches for

specific chemicals. For Polyvinyl Chloride (PVC) according to both the Institute for Agriculture and the Ecology Center, contact with PVC can cause birth defects, skin diseases, cancer and deafness, as well as liver and spleen problems. Another chemical Bisphenol A (BPA) as stated by S. C. Johnson, the manufacturer of Saran Wrap “Low doses of BPA lead to a range of health problems, including birth defects of the male and female reproductive systems in laboratory animals.”.

Link: <http://www.livestrong.com/article/530191-clear-plastic-wrap-food-safety/>

From Mike Lonsway’s Glass Packaging a clear choice, Food Quality and Safety Magazine (December/January, 2007)

The article’s main idea is that glass (transparent) packaging is better than other types packaging in appearance, preserving the quality and purity. Glass packaging is sustainable and made from natural rather than artificial raw materials and the impermeability of glass protects its contents from degradation. Moreover its feature of being chemically inert protects it from oxidation which helps to keep the food fresh for longer. The most important feature of glass packaging is that it is the only packaging material that is considered safe by FDA unlike other packaging materials.

From a consumer’s point of view some statistics are stated which imply that according to the more than 60% consumers glass packaging is the purest, healthiest of all packaging and that glass packaging increases shelf life, preserves the quality and flavor. Consumers prefer glass which is transparent over opaque because the visibility of the content allows the consumers to trust what they are buying. In short, this article implies that consumers assign a higher value on products which they can see when making the purchase decision.

Link:

http://www.foodquality.com/details/article/817099/Glass_Packaging_a_Clear_Choice.html?tzcheck=1&tzcheck=1

From Packaging Buzz Staff’s “Color of Packaging Impacts the Ripening process for Bananas and plantains”, Packaing Buzz (September 11, 2013)

This article summarizes the findings of a study conducted by the National University of Colombia on impact of colour of plastic packaging on the ripening process of the bananas. It was concluded by this research that colour of plastic packaging of bananas expedites the ripening process of the bananas. A research was conducted by Ussa in which the storehouse fruit packages of post-harvesting quality were examined using some quality parameters namely; weight loss and length; diameter and skin colour; total soluble solids and total sugars. The temperature and humidity conditions were controlled. The experiment was designed with 10 types of treatments (bag colors), three repetitions (bags) and five fruits in each bag.

Link: <http://www.packagingbuzz.com/editors-blog/2013/09/color-packaging-impacts-ripening-process-bananas-plantains/>

From Brian Wansink’s “Environmental Factors that Increase the Food Intake and Consumption Volume of Unknowing Consumers”, Food Psychology Cornell (2004).

This research studies the environmental factors like package size, plate shape, lighting, socializing, and varieties which can potentially affect food consumption by reducing the monitoring affect in consumption. This research identifies

the fact that very less research has been done on food consumption volume decisions than food choice decision even though environmental factors play an important role in the influencing consumption.

The environment is classified into the eating environment and the food environment; both influence food consumption volume directly and sometimes indirectly. Eating environment is independent of the food whereas the food environment is dependent on the food.

Wansink introduces the concept of consumption norm and consumption monitoring which mediate consumption volumes. Consumption norms are a method used by the consumers to keep track of their consumption levels; this is done by benchmarking consumption against cues such as plate size, presence of others etc. These norms result in consumer developing a normal range of consumption which one allows oneself to consume.

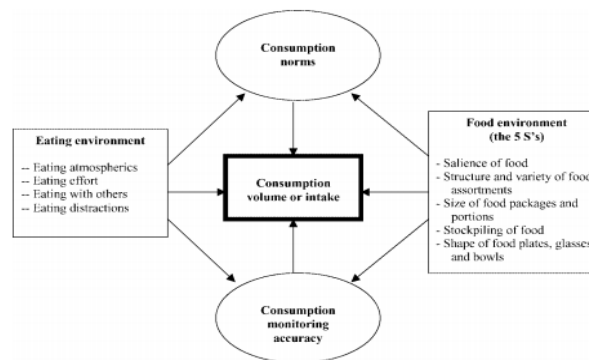


Figure 1: Antecedents and Mediators of Food Consumption Volume (Wasnik, 2004)

Another area studied by the research and relevant to my research was the salience effect which comes under food environment. Salience effect comes into effect when cues like smell and visual stimulate hunger. A research conducted on this effect justifies this when 30 Hershey's kisses were placed on the desks of secretaries, the candies placed in clear jars were consumed 46% more quickly than those placed in opaque jars (Wansink B, Painter JE, Lee Y-K. 2004).

In another research (mentioned in the article) where transparent packaged foods effects on consumption was studied, subjects were given sandwiches in transparent wraps and opaque wraps and it was concluded that consumption from transparent wraps was more than from nontransparent wrap. (Johnson WG. 1974). The reason associated with this consumption behavior is the salient effect which persistently by visual cues tempts the consumer to consume more. It has been established by a search that seeing food that is liked by a consumer increases hunger which in turn increases salivation which in turn increases consumption (Jansen A, Van den Hout M. 1991). A physiological evidence suggests that the ability to see a favourable food can trigger actual hunger by increasing the release of dopamine (Volkow ND, Wang GJ, Fowler JS, Logan J, Jayne M, et al. 2002.).

This article also notifies that salience effect is not only dependant on the external cues it can also be generated internally. According to a study, the consumption of those people who came with intention to buy cookie was more than those who impulsively bought it based on external cues. In another study, the salience effect of canned soup was measured by asking people to pen down the last time they ate soup in detail. Those who increased their consumption salience of soup in this way intended to consume 2.4 times as much canned soup over the next two weeks than the subjects in the control condition (Wansink B, Deshpande R. 1994) (Wansink, 2004).

Link:http://foodpsychology.cornell.edu/sites/default/files/Consumption-ARN_2004.pdf

From Yuhsin Tsai, Cheng-Hsing Fan, and Chi-Yuan Hung's "Improved gas-impermeable, Transparent Food Packaging", Plastics Research online (2010)

The article focuses on how the transparent food packaging can be improved by reducing the gas permeability especially for foods which are vulnerable to oxygen and carbon monoxide levels. Researches show that using polyethylene terephthalate (PET) with polymer/layered-silicate nanocomposites reduces the gas permeability of the packaging. The silicate reduces the permeability by diffusing molecules through the nano composite reducing the permeability. When combined with PET it also acts as the nucleating agent; the crystallization rate of pure PET is than that of PET mixed with polymer/layered-silicate nanocomposites but this results in loss of transparency of the packaging.

In order to maintain the transparency amorphous polymers like poly (amic acid), poly (methylmethacrylate) because of absence of crystallization. Glycolmodified PET copolyester (PETG) is part of PET family and is highly transparent thus suited for medical packaging and other kinds of transparent packaging.

In an experiment it was concluded that addition of organoclay didn't result in crystallization keeping it from becoming opaque. In the same experiment gas transportation was also measured by measuring Oxygen Transmission Rate (OTR) and is was inversely proportional to the amount of organoclay.(Tsai, Fan, & Hung, 2010)

Source: <http://www.4spepro.org/pdf/003032/003032.pdf>

From Packaging Europe's "Transparent Bio-Film for Packaging Industry Extends the Shelf Life of Fresh Food Products", (December3, 2012)

In this article plastiroll a company which did extensive research for two years, developed a formula for ideal transparent food packaging. The packaging crucial content is corn starch which results in breathable membrane which is biodegradable and gmo free which will keep fresh fruits and vegetables last longer.

They also claim this packaging to be more environmental friendly than most transparent packaging. As stated in the article:There is a demand for packaging materials with good green credentials as long as they perform as well as or better than conventional films," points out JaniAvellan, Product Development Manager at Plastiroll. "For our customers this is a solution that offers significant cost savings through longer shelf life, less waste and lower disposal costs." As the bio-film is biodegradable it can be easily disposed of along with the food waste.

The packaging is flexible and can be customized to develop stronger packaging with a better tolerance of grease, water vapour and gases according to the product's requirements. (**Transparent bio-film for packaging industry extends the shelf life of fresh food products, 2012**)

Source:<http://www.packagingeurope.com/Packaging-Europe-News/51039/Transparent-biofilm-for-packaging-industry-extends-the-shelf-life-of-fresh-food-products.html>

HYPOTHESES

Hypothesis#1

Females will purchase more transparent packaged food items than men in Karachi.

H0: There is no significant difference between the proportion of transparent packaged food purchased by males and females in Karachi.

H1: The proportion of transparent packaged food purchased by females is greater than that purchased by males in Karachi.

Independent Variable: Gender- Male and Female.

Dependant Variable: Proportion of transparent packaged food items purchased.

Controls

- Time of the day (3pm to 5pm)
- Day of the week (Sunday)
- Household's monthly income – more than PKR 100,000
- Age – 16 years to 60 years
- Minimum education matriculation/O level

Hypothesis # 2

People aged between 16-35 will purchase more of transparent packaged food items than people aged between 36-60 in Karachi.

H0: There is no significant difference between the proportion of transparent packaged food purchased by people aged between 16-35 and people aged between 36-60 in Karachi

H1: The proportion of transparent packaged food purchased by people aged between 16-35 is greater than that of people aged between 36-60 in Karachi.

Independent: Age - group 1 (aged 16-35) and group 2 (aged 36 to 60).

Dependant: Proportion of transparent packaged food items purchased.

Controls

- Time of the day (3pm to 5pm)
- Day of the week (Sunday)
- Household's monthly income – more than PKR 100,000
- Minimum education- Matriculation/O level

Type of Test: Independent Sample T –test.

Hypothesis#3

People with weights between 46-60 Kgs will purchase more of transparent packaged food items than people with weight between 61-75Kgs in Karachi.

H0: There is no significant difference between the proportion of transparent packaged food purchased by people with weights between 46-60 Kgs and people with weight between 61-75 Kgs in Karachi.

H1: The proportion of transparent packaged food purchased by people with weights between 46-60 Kgs is greater than that of people weights between 61-75 Kgs in Karachi.

Independent: Weights - group 1 (**46-60 Kgs**) and group 2 (**aged 61 to 75 Kgs**).

Dependant: Proportion of transparent packaged food items purchased.

Controls

- Time of the day (3pm to 5pm)
- Day of the week (Sunday)
- Household's monthly income – more than PKR 100,000
- Minimum education- Matriculation/O level

Type of Test: Independent Sample T -test

METHODOLOGY

Ethical Consideration

This research protects and does not reveal the identity of Super Mart in which the survey was conducted as per the request of the owner of the super mart. The permission of the customers was sought to fill the survey, the terms and purpose of the survey was explained at the beginning of the questionnaire in the following words:

“Thank you for taking out few minutes of your precious time, your response is of great value to the research titled, ‘A study of factors which increase or decrease level of food purchasing in relation to transparent food packaging: A survey in Karachi’. This research is aimed to find the marketing potential of transparent packaging”.

In addition to this purpose of the survey was verbally explained and the customers were asked to express any queries they had. The identity of the customers was not asked for in the research and they were assured that their identity will not be revealed in any form.

Customers selected for the survey were random and biases like taking surveys mostly from customers who are relatively easy to access like children were avoided. The survey was conducted as per the convenience of customers; the questions were verbally asked by the researcher and their answers were precisely recorded by the researcher while they were paying their bills at the cash counter so that customers didn't have to invest an additional time for the survey.

Research Design

The nature of the research is purely quantitative; the research used proportion of transparent packaging (dependent variable) with gender, weight and age (independent variables). The data for the research was mainly from collected from primary method through questionnaires distributed in a Super Mart A and secondary method using data from newspaper articles and journal articles with content published on food consumption, food purchase, monitoring effect, salience effect and transparent food packaging.).

After the primary raw data was collected, only the data which passed the control criteria of the subjects was entered manually in the SPS Software which applied inferential statistics to the raw data to convert it into processed data. Mainly, independent sample t-test was applied to the primary raw data and descriptive statistic has also been used to some extent to substantiate the explanations.

Sampling

The research was conducted on people 16 years and 60 years of age because people within this age bracket can make the purchasing decisions, thus able to better contribute to the research. Household's income is another factor which was considered in the subjects because the persistently increasing inflation rate and consequently rising prices of commodities leave household with income PKR 100,000 as the few households which can comfortably afford to make impulsive purchases. Thus, if the consumer has extra money to spend he/she is more likely to buy impulsively and more vulnerable to cues like transparent packaging than someone with a tighter budget. The third and last factor which was used considered in the subjects is education. Education is a factor because people with minimum education of matriculation/O level would have better analytical skills than people with a lesser education. Moreover, with matriculation/O level people can start off their career by doing business or by giving tuitions contributing to their household income which may reach or rise above PKR 100,000.

The research divided Karachi's population into three main zones namely; North Nazimabad, Clifton/ Defence and P.E.C.H.S/Bhadurabad. The data was collect from a famous Super Mart A located in the Central Zone of Karachi and the subjects were asked to specify their area of residence to aid in judging the representativeness of the sample as Karachi's population. The following frequency table and pie chart depicts the frequency distribution of sample's specified residential zones of Karachi

Table 1

Residence					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PECHS/Bhadurabad/Tariq Road	69	39.0	39.0	39.0
	Clifton/Defence	64	36.2	36.2	75.1
	North Nazimabad	33	18.6	18.6	93.8
	Others	11	6.2	6.2	100.0
Total		177	100.0	100.0	

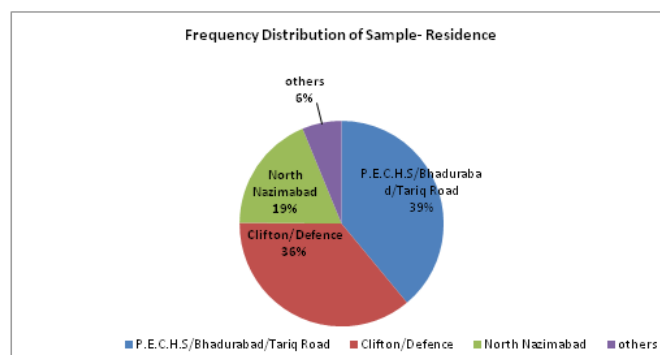


Figure 2

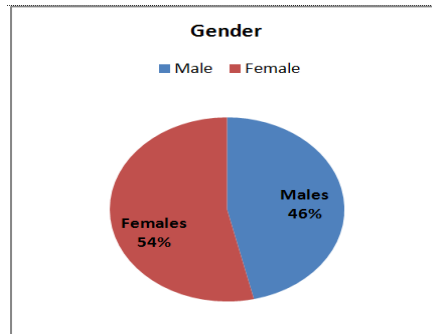


Figure 3

This shows that sample is representative of P.E.C.H.S/Bhaduarbad/Tariq Road and Clifton/Defence’s population but not of North Nazimabad population and people residing in other areas of the city. The sample is biased in frequency mainly because the survey was conducted in one Super Mart, Super Mart A only and not Super Marts from all zones. The questionnaire was conducted in one super mart only because the owners of other super marts didn’t permit to conduct the research. However, it must be noted that three categories are more than 15% and all categories are less than 40% thus this sample is fairly representative. 400 questionnaires were distributed and after screening out surveys which complied with the controls the relevant samples numbered to 177. Out of 177 54% were females and 46% were males this is a fairly representative characteristic because both the genders comprise of more than 45% and less than 50% of the total population.

Age, Education and weight of the sample is depicted through the following tables:

Table 2

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Matric or O levels	20	11.3	11.3	11.3
	Intermediate or A levels	53	29.9	29.9	41.2
	Undergraduate	61	34.5	34.5	75.7
	Graduate	33	18.6	18.6	94.4
	Others	10	5.6	5.6	100.0
Total		177	100.0	100.0	

Table 3

Age Interval					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15 years and below	1	.6	.6	.6
	16-35 Years	78	44.1	44.1	44.6
	36-60 years	95	53.7	53.7	98.3
	61 years or above	3	1.7	1.7	100.0
	Total	177	100.0	100.0	

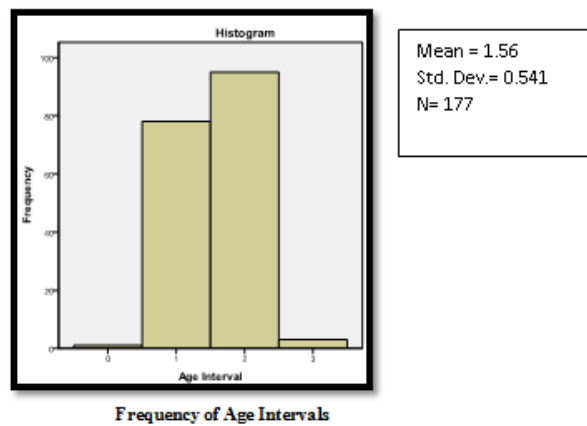


Figure 4

Table 4

Weight					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below or equal to 30 Kgs	4	2.3	2.3	2.3
	31-45 Kgs	36	20.3	20.3	22.6
	46-60 Kgs	72	40.7	40.7	63.3
	61-75 Kgs	60	33.9	33.9	97.2
	76 Kgs or above	5	2.8	2.8	100.0
Total		177	100.0	100.0	

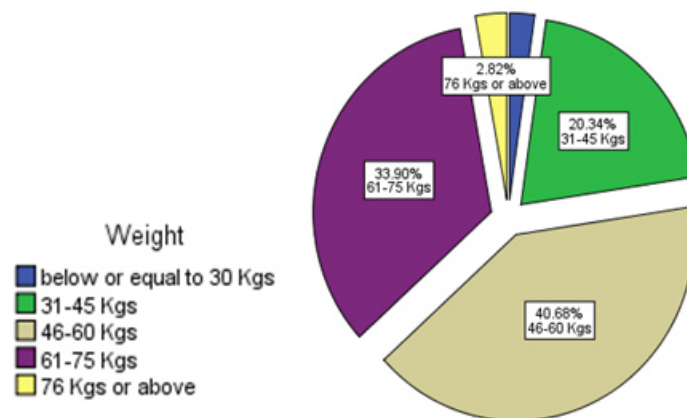


Figure 5

Statistics Used and Measures

Females will purchase more transparent packaged food items than men in Karachi.

H0: There is no significant difference between the proportion of transparent packaged food purchased by males and females in Karachi.

H1: The proportion of transparent packaged food purchased by females is greater than that of males in Karachi.

Level of Significance: α : 0.05

Test: Independent Sample T-test.

DESCRIPTIVE STATISTICS

Males

Table 5

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Proportion of transparent packaged food purchased by male	82	.06	.86	.3496	.18378

Females

Table 6

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Proportion of Purchases by Female	95	.07	.88	.4047	.22203

Table 7

Independent Samples Test										
		Levene's Test for Equality of Variances		t-Test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
VAR00002	Equal variances assumed	2.158	.144	-1.736	175	.084	-.05966	.03437	-.12749	.00816
	Equal variances not assumed			-1.755	174.998	.081	-.05966	.03399	-.12674	.00741

H2: People aged between 16-35 will purchase more of transparent packaged food items than people aged between 36-60 in Karachi.

H0: There is no significant difference between the proportion of transparent packaged food purchased by people aged between 16-35 and people aged between 36-60 in Karachi.

H1: The proportion of transparent packaged food purchased by people aged between 16-35 is greater than that of people aged between 36-60 in Karachi.

Level of Significance: α : 0.05

Independent Sample T-test

Table 8

Group Statistics-a					
	Age Interval	N	Mean	Std. Deviation	Std. Error Mean
Proportion of transparent Packaging	16-35 Years	78	.4128	.19399	.02196
	36-60 years	95	.3560	.21128	.02168

Table 9

Independent Samples Test-a										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Proportion of transparent Packaging	Equal variances assumed	1.556	.214	1.826	171	.070	.05682	.03112	-.00461	.11825
	Equal variances not assumed			1.841	168.838	.067	.05682	.03086	-.00410	.11774

Hypothesis#3

People with weights between 46-60 Kgs will purchase more of transparent packaged food items than people with weight between 61-75 Kgs in Karachi.

H0: There is no significant difference between the proportion of transparent packaged food purchased by people with weights between 46-60 Kgs and people with weight between 61-75 Kgs in Karachi

H1: The proportion of transparent packaged food purchased by people with weights between 46-60 Kgs is greater than that of people weights between 61-75 Kgs in Karachi.

Level of Significance: α : 0.05

Independent Sample T-test

Table 10

Group Statistics-b					
	Weight	N	Mean	Std. Deviation	Std. Error Mean
Proportion of transparent packaging	46-60 Kgs	72	.3801	.17928	.02113
	61-75 Kgs	60	.3110	.19792	.02555

Table 11

Independent Samples Test-b										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Proportion of transparent Packaging	Equal variances assumed	.990	.322	2.104	130	.037	.06914	.03286	.00413	.13414
	Equal variances not assumed			2.085	120.467	.039	.06914	.03316	.00350	.13478

RESULTS AND CONCLUSIONS

The significance value in the independent sample t test table –b is .332 is greater than 0.05 therefore we assume that the variances are equal. Using the first row of the table the P-value assigned to this study is 0.037 which is less than 0.05 therefore the alternate hypothesis is accepted. There is significance difference between the proportion of transparent packaged food purchased by people with weights between 46-60 Kgs and people with weights between 61-75Kgs in Karachi. By analyzing the group statistics table we conclude that people with weights between 46-60 Kgs (mean=0.38) will purchase more transparent packaged food items than people with weights between 61 to 75 Kgs. In short, weight is a variable which can impact the effectiveness and level of purchases of transparent packaged food. Generalizing, people will lower weight will be more influenced by transparent packaged food purchases than people with higher weights.

The significance value in table-4 is .144 and is greater than 0.05 therefore we assume that the variances are equal and consider the first row of the data. Since the P value =0.084 is greater than 0.05 we accept null hypothesis and reject alternative hypothesis. Therefore from the above independent t test its concluded that there is no significant difference between the proportion of transparent packaged food purchased by males and females in Karachi. **In short, gender doesn't influence the effectiveness of transparent packaged food purchases.**

The significance value in the independent sample test-a is greater than 0.05 therefore we assume that the variances are equal. Using the first row of the table the P-value assigned to this study is 0.07 which is greater than 0.05 therefore the null hypothesis is accepted. There is no significant difference between the proportion of transparent packaged food purchased by people aged between 16-35 and people aged between 36-60 in Karachi. **In short, like gender age no impact on the effectiveness of transparent packaged food items.**

MAJOR FINDINGS

GENDER

Table 9: Weight Consciousness

		Percent Males	Percent Females
Valid	Yes	68.3	57.5
	No	31.7	32.1

Table 10: Level of Consciousness

		Female Percent	Male Percent
Missing	Not weight Conscious	32.1	31.7
Valid	Low	8.5	9.8
	Moderate	17.9	20.7
	High	31.1	37.8

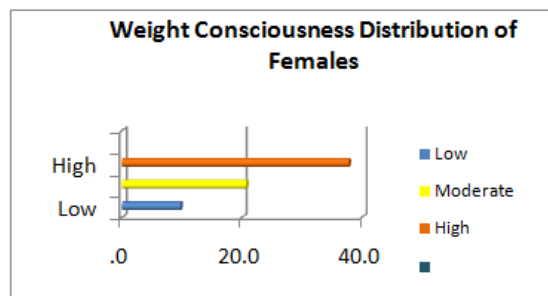


Figure 6

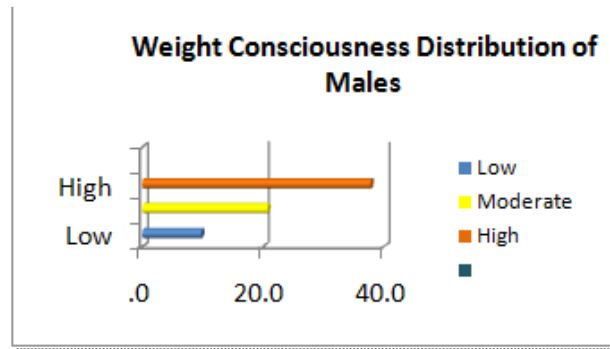


Figure 7

The reason for gender being a neutral factor to the effectiveness of transparent packaging is that the weight consciousness surprisingly doesn't vary with gender. As it can be seen in the very first table approximately 32% of males and females in the sample were not weight conscious. This implies that the monitoring effect of both males and females was same this is the reason for their similar purchasing pattern of transparent food packaging. This situation can be further analyzed more closely using the results of level of weight consciousness scale. The difference in percentage of males and females with low and moderate level of weight consciousness is almost same; the difference in low level is 1.5% and the difference in moderate level is 3%. There is an approximately six percent difference in the percentage of males and female with high level of weight consciousness.

Table 11

Correlations			Proportion of Transparent Packaging	Weight
Spearman's rho	Proportion of transparent Packaging	Correlation Coefficient	1.000	-.310**
		Sig. (2-tailed)	.	.000
		N	177	177
	Weight	Correlation Coefficient	.310**	1.000
		Sig. (2-tailed)	.000	
		N	177	177

The coefficient of correlation between weights and proportion of transparent packaged food purchased is -0.310. This correlation table depicts the fact that weight is inversely correlated to proportion of transparent packaged food purchased but the strength of relationship is weak. Therefore, we can conclude that weight has an impact but not a very significant impact on the purchase of transparent packaged food items. Surprisingly, the reason normally associated with the negative relationship between transparent packaged food items and weight is the increasing weight consciousness in people with increasing weights. In this case this is not so, the high weight consciousness in this sample date is decreasing in weight bracket of 61-75 Kgs. This reason can be used to explain the weak correlation coefficient. However it must also be noted that that moderate weight consciousness is showing an increasing trend.

Table 12

		31-45 Kgs	46-60 Kgs	61-75 Kgs
Monitoring Effect	Low	20%	13%	9%
	Moderate	28%	24%	40%
	High	52%	63%	51%

MANAGERIAL IMPLICATIONS

Since this research concludes that gender and age has no effect on the level of transparent packaging purchased it is clear monitoring effect is independent of age and gender but not weight. Therefore marketers should focus on weight and explore other variables like level of income. Moreover; other variables which are closely related to weight should also be considered for example, location near famous restaurant, ice cream parlor etc. This is so because generally people with lower level of weight consciousness tend to visit restaurants and ice cream parlors; people with high level of weight consciousness avoid these place due to a potential of high calorie intake. Also, items in these places can be packaged in transparent packaging to increase the sales of the restaurant or any other eat-out.

Future Consideration and Limitations

The following are the future recommendations for researches:

- The sample size should be well dispersed and more representative so that the results could be applied and valid for a wider market, for example this research was conducted only in Karachi and only in one super market the result of this research cannot be used by marketers in other cities of Pakistan.
- Factors other than monitoring effect should be studied since one factor alone cannot be the sole determinant of transparent packaging's effectiveness. Factors like consumer attitudes which have been negatively shaped by researches published on transparent packages ultra violet rays penetration should be studied.
- Factors closely related to weights consciousness rather than random factors should be studied. Since factors closely related to weight will have a higher probability of resulting in a positive outcome which can be used by marketers.

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