

An Empirical Analysis of Attribute Importance in Selection of Hair Dyes- Issue and Perspectives

Dr.Rahela Tabassum M.B.A,M.phil, Ph.D, Aruba Zubedi

Associate Professor, Amjad Ali Khan college Of Business Administration, H.No: SRT 721, Sanath nagar, Hyderabad-18, Telangana, India

M.B.A(Student), Amjad Ali Khan College of Business Administration, H.no- 12-2-419/B/10, Flat 202, Pearl Res, Opp. Alapati Community Hall, Mehdipatnam- 500028, Telangana,India

Abstract

With women as well as men being targeted by the beauty industry, this article aims to analyze the consumer preference for different brands of hair dye. Certain Brands such as Godrej, Vasmol, Garnier, Streax, L'Oreal, Revlon, Bigen and Wella K commonly used in India are used to interpret the consumer preferences, issues and perspectives on hair dyes. A Multi-Dimensional Scaling (MDS) technique was used for this purpose.

Keywords: *Hair dye, Henna, Para-phenylenediamine (PPD), hyper pigmentation, Brand image*

1. Introduction

Beauty gets Attention whereas Personality gets the heart. In today's superficial and skin-deep society, a person is judged on various characteristics like facial features, dressing, voice, appearance, body structure and even height. Although these characteristics are beyond one's control or power, there is a strong demand for products that help to enhance these features. A society that considers beauty as power and worships celebrities provides a perfect opportunity for beauty enhancing products and the cosmetics industry.

Although the famous quote of Plato, "Beauty lies in the eyes of the beholder" is repeated often; it merely remains a recitation and not a reflection. For everyone strives to achieve beauty and increase their appeal even when they may be already considered beautiful. Many celebrities keep updating their style and fashion to remain appealing. Some even undergo painful treatments and expensive surgical procedures just to attain that perfect look. However, is this behavior exhibited even in the common man?

The cosmetics industry ranges from skin care, hair care, fragrances to spas and anti-aging treatments. According to FashInvest, the global sales in the beauty industry reached approximately \$426 billion in 2013 and are expected to reach \$630 billion by 2017. Roughly, about 20% of these sales belong to hair care market. Shampoos, conditioners, hair colors, styling products are some of the key products that comprise of hair care market. Men's grooming is also a booming market being valued at about \$29 billion in 2014. According to Confederation of Indian Industries (CII), the total Indian beauty and cosmetic market size currently stands at \$950 million and expected to grow 15-20% per annum.

Hair dyeing or hair coloring is the practice of changing the natural hair color. Hair coloring is basically of 3 types- Permanent, Semi-permanent and Temporary. Often, the prime reason for hair coloring is cosmetic and enhancement of natural beauty. Hair coloring is extremely popular and various shades of hair dye are offered by almost every leading cosmetic brand. About 75% of women in the US dye their hair.

Hair coloring is the treatment of hair with various chemical compounds to produce the desired color. These may be plant-based dyes such as Henna or chemical compounds like ammonia and hydrogen peroxide. In ancient times, Henna, Amla, Indigo, Turmeric, Black Walnut Hulls and other such plant based dyes were used to color hair. Ancient Egypt, North Africa and Arabian Peninsula have traditionally used henna as cosmetic hair dye since almost 6000 years. In Europe, the use of Henna gained popularity from the 1800s. Nowadays commercially

processed and packaged Henna is available in most countries, especially India, Pakistan, Middle East and Europe. The color that is obtained after applying Henna varies from orange to auburn to various shades of red depending upon the natural or pre-existing color of hair. The use of Henna for dyeing nails, hair and even on hand and feet is extremely popular among Muslim women as it is encouraged in Islam.

There are very few negative side effects of using natural Henna which may be mild allergies. However, Henna that is mixed with metallic salts or chemicals like para-phenylenediamine (PPD), silver nitrate, carmine etc. can cause chronic inflammatory reactions, blistering and even intense itching.

Para-phenylenediamine (PPD) - the most important element of any modern hair dye was discovered by Eugene Schuller, a French chemist who later promoted it as safe hair coloring product in 1909. The Centers for Disease Control and Prevention (CDC) in the United States has declared PPD to be a contact allergen. Allergens are antigens that produce abnormal immune response in the body and cause reactions called as allergies. PPD can cause throat irritation, asthma, sensitization, reddening and swelling of scalp and face.

Modern hair dyes contain hydrogen peroxide, ammonia and para-phenylenediamine (PPD). Hydrogen Peroxide is a developer or oxidizing agent that helps color hair and provides longer lasting color. It removes sulfur from hair which enables foreign color to replace the natural hair color. However, loss of sulfur from hair leads to hardened and brittle hair. Ammonia is an alkaline used to lighten the hair color. It combines with hydrogen peroxide and acts as a catalyst that helps penetrate the hair dye permanently. Apart from this, various types of alcohol are used in hair dyes. However, alcohol leads to dry hair.

According to an article by StyleCraze (2013), some of the top brands of hair dye in India are Revlon, Garnier, Godrej, L'Oreal, Wella Kolestint, Vasmol, Bigen and Streax.

- Revlon- The first International Color Cosmetics brand to be launched in India in 1995, Revlon is extremely popular in the Indian beauty market.
- Garnier- Offering one of the most affordable and large variety of hair colors, Garnier has successfully gathered huge customer base.
- Godrej- It offers the cheapest hair dye products and variants such as crème based and powder based.
- L'Oreal- This French cosmetics giant focuses on quality and promotes excellence crème hair dyes.
- Wella Kolestint- It is one of the recently introduced brands in India and focuses on quality and variety. Major promotion is based on the hair dyes being Ammonia-free.
- Vasmol- Super Vasmol Kesh Kala is a popular hair dye offered by Vasmol promising jet black hair and claiming to be Ammonia-free and Peroxide-free.
- Bigen- Having an advertising campaign as “Origin of Beauty”, Bigen is beginning to carve a niche in the Indian cosmetic market.
- Streax- Streax produces revolutionary high-quality home hair colors that are easy-to-use and innovative such as hair color with Walnut Oil and Kera-Vit Conditioner.

2. Review of Literature

Consumer preferences and behavior are a crucial factor for the success of any product or brand. Let us analyze the economic behavior of consumers and various factors that drive this behavior. Microeconomics gives the

Consumer Theory which assumes that consumers are rational and try to maximize satisfaction by optimal use of resources. Demand and Utility gives a model for consumer behavior. Demand by a consumer is driven by their income, price of goods, price of substitute and complementary goods. Law of demand states that the quantity demanded is inversely proportional to the price of the product, while other factors being constant. The Neoclassical Theory of demand states that the demand function of an individual is always in equilibrium and optimal condition that depends when the price changes, while other factors remaining constant.

Utility is a measure wherein the capacity of a good or service to satisfy consumer wants is derived. There are various concepts under utility such as Total Utility (TU) and Marginal Utility (MU). TU gives a measure of total satisfaction or utility derived from a specific quantity of goods whereas MU gives a measure of change in TU due to change in quantity consumed. However, the concept of utility also gives the “Law of Diminishing Marginal Utility” which states that the added satisfaction of a consumer diminishes for a given product when the consumer acquires additional units of the given product. Exceptions to this rule are rare or precious goods, goods of ostentation, Giffen goods or any change in customer preferences, habits, fashion or customs.

Further, Adam Smith (1700s) gives the ‘diamond-water paradox’ which recognizes that in spite of water having higher utility than diamonds, its marginal value and price is low due to easy availability of water. Consumer theory also gives Indifference Curve which shows the utility level of consumer achieved by various combinations of two goods. However, a consumer is always willing to exchange one good or another. For example: exchange of Rs 100 for 1kg of apples. The rate at which the consumer is willing to exchange or trade goods is called as the Marginal Rate of Substitution (MRS).

Moreover, a consumer is always faced with Budget Constraints. This emphasizes that the consumer has limited resources to spend and with a finite budget, rational consumers choose the best good or service that they can afford. Factors such as Perfect Substitutes, Perfect complements, change in consumer income, change in Price levels and availability of product are extremely important that influence consumer behavior and their preferences.

An interesting phenomenon is that the consumer behavior is irrational when it comes to Giffen goods and Veblen goods. Giffen goods theory is given by economist Sir Robert Giffen. The demand and consumption of those goods that rises when there is an increase in its price, is called as a Giffen good. This is a violation of the law of demand. However, Giffen goods are inferior goods, for example: staple food like bread or rice. Even if the price of bread rises, consumers would still purchase it due to presence of more expensive substitutes. The Income effect dominates in case of Giffen goods.

Veblen goods theory is given by economist Thorstein Veblen. Veblen goods are positional or status symbol goods whose demand and consumption is directly proportional to price. Veblen goods include luxurious goods such as jewelry, designer bags, designer clothes, luxury cars and bikes etc. Veblen goods follows the consumer psychology that higher the price of good, the more exclusive and high-status it is. This works on the perception that a lower price may indicate that the quality of the good is also low.

Hair dyes and their manufacturing brands follow the law of demand and therefore, consumer behavior is expected to be rational and optimal.

Ghose and Lowengart (2013) identified in their research that consumer’s preference is based on the ‘halo effect’. This means that consumers do not consider all the attributes of a brand but globally evaluate the product and brand. This research work focused on analyzing consumers’ preferences and choice for international, national and private brands which in turn would allow a greater understanding of product positioning and targeting issues in a market. The result was that attributes such as shampoo’s scent, foam, after use feeling, and reputation were considered significant by customers while making a choice. However, different gender and consumer groups had different preferences about the same product.

Albert Ferrer et al (2012) conducted a study of the European cosmetic industry which showed that it is the largest and fastest growing cosmetic market in the world. European men as well as women are fashion forward and often, fashion innovators as well. Germany, France, UK, Italy and Spain are labeled as the ‘big 5’ companies of the cosmetic industry of Europe. These European countries not only generate largest revenues but are also leaders of export and import of cosmetic products.

Khawaja Mubeenur Rahman et al (2012) state that in the year 2010-11, the Indian hair care market was dominated by hair oil segment (54.83%) followed by shampoo segment (31.28%) in terms of value. Moreover, even in terms of volume, hair oil segment leads the Indian hair care market. Hair dye segment has grown by 16.19% in 2010-11 in terms of value. The Indian market share of hair care segment contributes a considerable amount i.e. 9% of FMCG sector which is continuously increasing from Rs.6230.8 crores to Rs.8417.79 crores of rupees in the commercial years of 2008-09 to 2010-11.

Dr. Vyas, M. (2014) states that a lot of hair care market customers indulge in brand switching often, due to introduction of new and improved products, heavy advertisements, sales promotions and even celebrity branding. Moreover, when dealing with hair care, customers prefer those brands that emphasize on using natural ingredients in the product such as Chamomile, Red clover, Vitamin E and so on. Dr. Vyas further states that due to this preference, the brands of shampoos that claim to be 100% organic and toxic-free have created a niche in the hair care market.

In spite of such popular use of hair dyes globally, hair dyes contain chemicals that scientists have never termed as ‘toxic-free’. Correa et al (2000) conducted research in the field of hair dyes and the subsequent health effects arising due to their long-term usage. This research was conducted after a review by the International Agency for Cancer Research (IARC) in 1993 concluded that evidence was inadequate to evaluate the carcinogenicity of hair dye use. Correa et al (2000) scientifically researched the association between use of hair dye and diseases like lymphomas and multiple myeloma (MM). Though some cases were found, these associations were not consistent within and between the studies conducted.

Further, Rollison et al (2006) conducted a research by studying various articles published in January 1992-February 2005 that investigated the association between personal hair dye use and cancer. The result was that there existed an association between hair dye use and various cancerous diseases like non-Hodgkin's lymphoma, multiple myeloma, acute leukemia, and bladder cancer which were observed in at least one well-designed study with detailed exposure assessment. However, these results were not consistently observed across all the studies.

3. Objectives

- The primary objective is to analyze the importance of attribute in the selection of Hair dyes.
- To study about the consumers’ awareness about the issues related to Hair dyes.
- To find out the factors which influence the purchase of Hair dyes.

4. Research Methodology

The study includes both Qualitative and Quantitative research. The Quantitative research is based on Survey method. It seeks to examine the opinion of 350 respondents about the various issues related to Hair dyes. A structured Questionnaire which includes both open-ended and close-ended questions was administered to collect information from the respondents. The period of study was from January 2014 to August 2014.

The brands of Hair dyes which are frequently purchased are first identified by the Researcher by visiting various super markets, medical halls and beauty parlors. The respondents visiting these places were asked to fill the questionnaire. However, the researcher was able to receive only 300 completely filled Questionnaires.

The Qualitative research is based on In-depth Interviews with Dermatologists of cosmetic clinics like Oliva, Life, VLCC, LaBelle, Cosmos etc.

Results and Discussion

The findings of the study are presented in the following tables and paragraphs:

Table 1: General Profile

| Factor | Classification | Respondents | Percentage |
|----------------------------------|-----------------------|--------------------|-------------------|
| Age | <18 | 13 | 4.33 |
| | 18-25 | 15 | 5 |
| | 26-35 | 53 | 17.66 |
| | 36-45 | 85 | 28.33 |
| | 46-50 | 93 | 31 |
| | >50 | 41 | 13.66 |
| | Gender | Male | 151 |
| Female | | 149 | 49.66 |
| Marital Status | Married | 218 | 72.66 |
| | Unmarried | 82 | 27.33 |
| Occupation | Self-employed | 90 | 30 |
| | Employed | 46 | 15.33 |
| | Professional | 60 | 20 |
| | House-wife | 54 | 18 |
| | Student | 50 | 16.66 |
| Income level (in INR) | <5,000 | 50 | 16.66 |
| | 5,000-10,000 | 60 | 20 |
| | 10,000-15,000 | 80 | 26.66 |
| | 15,000-20,000 | 55 | 18.33 |
| | >20,000 | 55 | 18.33 |

The above table gives a general profile inferred from 300 respondents. It can be inferred from Table 1 that 28.33 percent of the respondents are in the age group of 36-45 where 50 percent are male and 72.66 percent of them are married. With regard to occupation, 30 percent are self-employed and 20 percent are professional. Majority of the respondents have a monthly income of Rs.10000-15000.

Table 2: Usage Pattern of Hair dyes

| Factor | Classification | Respondents | Percentage |
|---------------------------------|-----------------------|--------------------|-------------------|
| Application of hair dye | Yes | 198 | 66 |
| | No | 102 | 34 |
| Preferred Color | Black | 108 | 54.54 |
| | Brown | 59 | 29.79 |
| | Burgundy | 19 | 9.59 |
| | Blonde | 10 | 5.05 |
| | Other | 2 | 1 |
| | | | |
| Frequency of Application | Daily touch-up | 15 | 7.5 |
| | Weekly | 38 | 19.11 |
| | Fortnight | 100 | 50.5 |
| | Monthly | 45 | 22.72 |
| Type of dye | Herbal | 45 | 22.72 |
| | Chemical | 153 | 77.27 |
| Form of dye | Powder | 45 | 22.72 |
| | Liquid | 53 | 26.76 |
| | Crème | 60 | 30.30 |
| | Oil | 40 | 20.2 |
| | | | |
| Size of Pack | Small | 80 | 40.41 |
| | Medium | 62 | 31.31 |
| Period of use of Dye | Large | 56 | 28.28 |
| | <1 month | 15 | 7.57 |
| | <1 year | 37 | 18.68 |
| | <10 years | 98 | 49.49 |
| | <20 years | 48 | 24.24 |

The Usage pattern of hair dyes is given in above Table 2. It shows 66 percent of the respondents prefer to apply hair dye and 54.54 percent of them prefer to apply hair dye of black shade. 50.5 of the respondents prefer to apply hair dye every fortnight. 77.7 percent of them prefer chemical based hair dye. 30.30 percent of the respondents use crème based hair dye and 40.4 percent prefer small size of pack. 49.49 percent of the respondents have been using hair dyes for a period of less than 10 years.

Table 3: Issues and Perspectives

| Factor | Classification | Respondents | Percentage |
|--|-----------------------|--------------------|-------------------|
| Factors considered for Hair dye selection | Brand Name | 78 | 39.39 |
| | Content | 10 | 5.05 |
| | Color Range | 15 | 7.57 |

| | | | |
|------------------------------|--------------|----|-------|
| Decision Influencer | Availability | 18 | 9.09 |
| | Price | 67 | 33.8 |
| | Safety | 10 | 5.05 |
| | Friends | 28 | 14.14 |
| | Relatives | 48 | 24.24 |
| | Ads | 44 | 22.22 |
| | Beauticians | 68 | 34.34 |
| | Doctors | 10 | 5.05 |
| Problems with dye use | Pigmentation | 88 | 44.44 |
| | Allergies | 25 | 12.62 |
| | Rashes | 15 | 7.57 |
| | Other | 5 | 2.52 |
| | No problem | 65 | 32.82 |

Different issues and perspectives of 198 respondents who use hair dyes are given in above Table.39.39 percent of the respondents select hair dye on the basis of brand name.34.34 percent of the respondents is of the opinion that they are influenced by the beautician in their decision to select a hair dye.44.44 percent of the respondents have complained about the problem of Hyper pigmentation after the consistent application of hair dye of black shade.

A Multi-Dimensional Scaling (MDS) technique was used to identify how the most frequently purchased brands of hair dyes available in Indian market are perceived by the consumers. SPSS package was used to identify the dimensions for positioning of brands and the positioning maps of 8 brands of hair dyes are plotted.

Dissimilarity: Euclidean distance

Compute proximities for the: Columns

Table 4: Proximity matrix (Euclidean distance)

| | Godrej | Vasmol | Garnier | Streax | L'Oreal | Revlon | Bigen | Wella K |
|---------|--------|--------|---------|--------|---------|--------|--------|---------|
| Godrej | 0 | 9.031 | 13.078 | 14.216 | 14.435 | 17.270 | 17.468 | 17.861 |
| Vasmol | 9.031 | 0 | 14.994 | 13.787 | 15.774 | 17.104 | 18.199 | 18.885 |
| Garnier | 13.078 | 14.994 | 0 | 11.893 | 16.100 | 16.283 | 16.853 | 16.432 |
| Streax | 14.216 | 13.787 | 11.893 | 0 | 14.687 | 16.655 | 16.851 | 17.413 |
| L'Oreal | 14.435 | 15.774 | 16.100 | 14.687 | 0 | 12.570 | 15.971 | 13.831 |
| Revlon | 17.270 | 17.104 | 16.283 | 16.655 | 12.570 | 0 | 11.181 | 13.461 |
| Bigen | 17.468 | 18.199 | 16.853 | 16.851 | 15.971 | 11.181 | 0 | 11.751 |
| Wella K | 17.861 | 18.885 | 16.432 | 17.413 | 13.831 | 13.461 | 11.751 | 0 |

The Table 4 above shows the output of the MDS program. When MDS technique is used the first task is to determine the number of dimensions in which the best solution exists. The number of dimension is based on the stress value.

Table 5: Stress Values

| | 1 Dimension Solution | 2 Dimension Solution | 3 Dimension Solution |
|--------|----------------------|----------------------|----------------------|
| STRESS | 0.4315 | 0.2501 | 0.05230 |
| RSQ | 0.3524 | 0.5821 | 0.9604 |

The above table shows the value of stress. Stress value indicates lack of fit, so the value should be as close to 0 as possible. From the above table it is clear that the 1-dimensional solution is not a good one. The 2-dimensional solution is better, but the 3-dimensional solution looks the best as the stress value is low i.e 0.05.

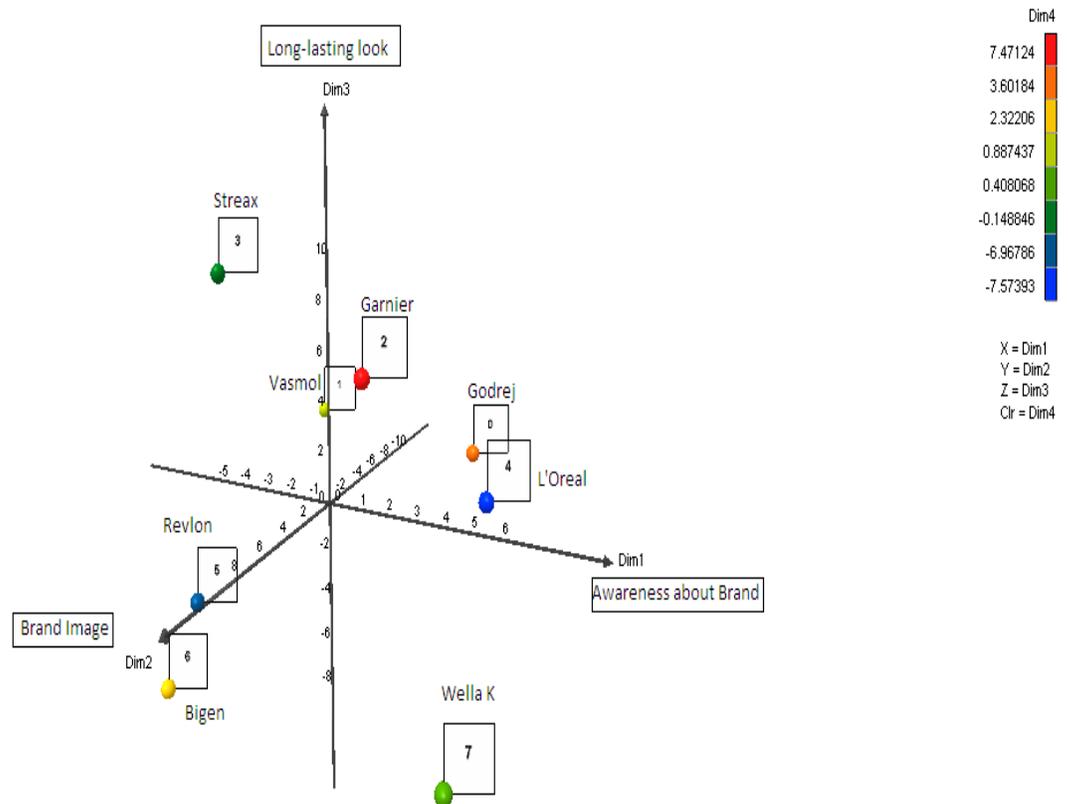
For the 3- dimensional solution the next task is to name the dimensions. The naming of dimensions is based on previous knowledge of brands and purely subjective. Based on the scores for the 8 brands on the 3-dimension the dimensions are named as follows

DIMENSION 1- AWARENESS ABOUT BRAND

DIMENSION 2- BRAND IMAGE

DIMENSION 3- LONGLASTING LOOK

Based on the scores of 3 dimensions, it has been found that some brands like Revlon and Bigen enjoys a good brand image. Brand L’Oreal enjoys more awareness among Indian consumers. Garnier and Vasmol are perceived by Indian consumers to have a long lasting look.



5. Findings:

- 1) Majority of the people in the age group of 36-45 and 46-55 use hair dye.
- 2) Majority of them have been using the hair dye for the past 10 years.
- 3) Most of the respondents prefer chemical based hair dye and prefer black shade.
- 4) The frequency of application of hair dye is every fortnight.
- 5) The Brand image and the Price are the factors in selecting a hair dye.
- 6) The respondents were influenced by beauticians and advertisements in selecting a brand.
- 7) Hyper pigmentation is the major problem reported by the respondents after the application of hair dye.

6. Conclusions:

It is evident from the study that majority of the consumers prefer a hair dye of black shade. The in depth interview with the Dermatologist has revealed that consistent application of hair dye of black shade causes hyper pigmentation. Therefore the Dermatologist is of the opinion that the consumers should apply petroleum jelly on the face and neck before the application of hair dye. Moreover the black shade should be replaced by brown as the application of hair dye of black shade causes an irreversible and irreparable damage to the skin. Moreover the consumers should switch to herbal based hair dyes.

References

- [1] Alford, L. (2013) *The World Spends Billions to Look Beautiful. How Big is the Beauty Industry?*, International News, FashInvest [Internet] Available at: <http://www.fashinvest.com/world-spends-billions-beautiful-big-beauty-industry/>
- [2] Bernheim, D. and Whinston, M. (2013) *Microeconomics*, New York: McGraw-Hill
- [3] Brain, M. (2011) *How Hair Coloring Works*, How Stuff Works [Internet] Available at: <http://science.howstuffworks.com/innovation/everyday-innovations/hair-coloring2.htm>
- [4] Correa, A., Jackson, L., Mohan, A., Perry, H. and Helzlsouer, K. (2000) *Use of hair dyes, hematopoietic neoplasms, and lymphomas: a literature review*, Cancer Invest, Vol. 18, No.5, pp.467-479
- [5] Dr. Vyas, M. (2014) *An Analysis of Hair Care Products With Reference to Indian Market (Myths Facts Vs Fictions And Consumer Satisfaction)*, International Journal of Research & Development in Technology and Management Science, Vol. 21, No. 2, pp. 3-18
- [6] Ferrer, A., Hidalgo, C., Kaps, R. and Kougoulis, J. (2012) *Revision of European Ecolabel criteria for Soaps, Shampoos and Hair Conditioners- Market Analysis*, SUSPROC, Joint Research Centre, European Commission [Internet] Available at: http://susproc.jrc.ec.europa.eu/soaps_and_shampoos/docs/Market%20Analysis_Draft%20Repor.pdf
- [7] Ghose, S. and Lowengart, O. (2013) *Consumer choice and preference for brand categories*, Journal of Marketing Analytics, Vol. 1, No. 1 pp. 3-17
- [8] Mubeenur Rahman, K., Dr. Kazi, R. and Sourav, S. (2012) *Analysis of hair care products with reference to Shampoo market in India*, Journal Of Research In Commerce & Management, Vol. 1, No. 11, pp. 177-184
- [9] Rollison, D., Helzlsouer, K. and Pinney, S. (2006) *Personal hair dye use and cancer: a systematic literature review and evaluation of exposure assessment in studies published since 1992*, Journal of Toxicology and Environmental Health, Vol. 9, No. 5, pp. 413-439



- [10] Shabby (2014) *Best Hair Color Brands Available in India – Our Top 10*, Style Craze [Internet] Available at: <http://www.stylecraze.com/articles/best-hair-colour-brands-available-in-india-our-top-10/>
- [11] Wikipedia (2014) *Henna* [Internet] Available at: <http://en.wikipedia.org/wiki/Henna>