

IMPACT OF DEMOGRAPHIC SETTINGS ON CONSUMER PERCEPTUAL RESPONSE OF CAFFEINATED BEVERAGES ACROSS SOCIAL CROSS PROFILES

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Abstract - Sector of Food Science and Technology is collectively linked with Sensory Science and Consumer Behavior where the consumer's sensitivity is concerned. This paper systematically reviews the impact of age, gender, education level, occupation, income level and expectation of the consumers toward the perceptual response for tea, coffee and a selected cola beverage. Study was conducted by a survey with a questionnaire and samples of each beverage were given to the selected respondents and tested according to ISO 5495:2005(E) standards for sensory evaluation. Collected data was analyzed for multinomial regression by SPSS 22.0 statistical software and results determines the effect of education level and occupation were insignificant ($P>0.050$) and age, gender, income level and expectation were significant ($P<0.050$) towards the perceptual response. Further parameter analysis found that increment in low income levels, gender male, and younger ages with the expectation on the brand has high perception towards cola beverages while elder people, low income levels, gender female and expectation on taste has high perception on tea. Coffee shows similar results as for tea, but middle income level and expectation towards taste and quality was emphasized. Overall, the study found that pattern of consumer perception has a correlation with defined factors and the impact fluctuate consumer's perception on beverages according to the social profile.

Keywords- Ageing, Beverages, Demographic factors, Perception

1. INTRODUCTION

Even though, product development is a mission of designing, determination of the consumer acceptance and preference is truly based on the perception of the consumer^[3]. Perceptual response is the mental phenomena which involves with immediate sensory experience to recognize and react on environmental responses. This usually associated with the field of food science and technology, since product purchasing is oriented on the perception of the consumer.

Perception includes five human senses; sight, sound, smell, taste and touch. It also includes proprioception and the cognitive ability where the information gathered is concerned. Apart from environmental stimuli; psychological, physiological and demographical factors are affecting the perceptual response of the consumers. According to previous researches the effect of perception towards products and

product development were examined, but studies on the perceptual response and the effect of assessed factors towards food products were very less.

Since most of the people have a habitual trend to use caffeinated beverages (natural/artificial) in their life, perceptual response of the respondents were intended to analyze towards the preference for caffeinated beverages. This study identifies the effect of age, gender, education level, occupation, income level and the expectation of the consumer towards the perception of tea, coffee and cola beverages.

2. METHODOLOGY

2.1 Participants

Participants for three age groups as 15-30, 30-45, and 45-60 were selected for this study in two gender sub groups; male and female. 205 volunteered participants were engaged for the study but 25 were dropped by the screening. Each group consisted 30 respondents (Consumer panels sampling as per ISO 5495:2005E), totally 180 participants were taken after the screening process. All the participants were recruited from a semi urban area of Matara district, Sri Lanka. And all respondents selected were having normal, good health condition.

2.2 Task and Procedure

A prearranged survey based questionnaire contained subjects as name, gender and age and other relevant multiple choice queries was given to the respondents.

Tea, instant black coffee and cola beverage (suddenly opened) were considered as the stimuli which initiate the perceptual response of respondents in consumer panels. For Tea and Coffee, respondents were given the chance to add sugar according to their preference. And similarly, the temperature condition (Hot/Cool) was provided for the beverages according to the preference of the respondent. Samples were not coded in particular order, but named three samples referring to the beverage as by its common name.

2.3 Statistical Model

Using IBM SPSS version 22.0 the Statistical Software package with a significance level of 0.05 was taken into contemplation the relation of perception with defined factors. The relationship of the significant sensory appeal; Perceptual Response with distinct age group respect to the gender was

examined by the responses on the paper questionnaire and it was interpreted using the multinomial regression analyses for the factors age, gender, educational level, occupation, income level, and expectation. A significance level of 0.05 was taken into consideration to protect against Type I errors and the lowest level of each factor always considered as the referring category.

3. RESULTS AND DISCUSSION

Collected data through the questionnaires was analyzed using SPSS 22, multinomial regression analysis and summarized in the table 1.

Table 1 Summarization of the statistical analysis outputs

Analysis	Sig. value
Model fitting information (sig. value)	0.000
Pseudo R square test (Nagelkerke value)	0.518 (51.8%)
Likelihood ratio test	
Intercept	.
Age	0.000
Gender	0.001
Education level	0.778
Occupation	0.289
Income level	0.008
Expectation	0.031

According to the model fitting information, applied multinomial regression for the study was significant ($P < 0.050$). Since Nagelkerke R² value was exceeding 50%, considered factors (age, gender, education level, income level, occupation, expectation) for the perceptual response of the respondents were satisfactorily contribute for the correlation as the major segment of the factors were considered in the study.

Likelihood ratio test shows the relationship in between perceptual response and the factors considered. Results show intercept is insignificant ($P > 0.050$). It depicts that, to initiate a perceptual response an external factor should be influenced the process of perception as it begins with pre-attentive processing [5].

According to the results; age, gender, income level and the expectation are significant ($P < 0.050$) while education level and occupation were insignificant ($P > 0.050$). Age is the key factor which affects the sensory perception, especially to the

perception of the taste with the heterogeneous nature of the older public [4]. It further has found the relationship of the perceiver's attitude as the expectation and external factors combined to the perceptual response.

Further the nature of the correlation with significantly effecting factors was analyzed by the parameter estimates as shown in the table 2.

	Age	Gender	Income level	Expectation
Tea				
B value ¹	1.861	-2.179	-16.976	-0.436
Sig. value	0.000	0.001	0.000	0.000
Coffee				
B value	1.593	-2.369	-37.499	-0.540
Sig. value	0.001	0.002	0.000	0.001
Cola				
B value	-1.861	2.119	16.976	1.346
Sig. value	0.000	0.001	0.000	0.000

Perceptual response based on the preference of tea and coffee, a positive gradient was showed by the factor age. But gender, income level and expectation showed negative gradients. Overall, income level has the steeper gradient and the expectation has the gentlest. But the gradient of the income level for the preference of coffee has doubled its gradient compared with the preference of tea.

On the facts, mostly middle and older ages, female, lower and middle income levels and expectation for the taste was affecting higher to the perception of tea. Similarly, perception of coffee is influenced highly by Middle Ages, female, middle income levels and expectation towards quality and the taste of coffee. According to the [2]; same results were obtained.

When the perceptual response of the respondents for cola was considered, it shows a diverse result than for the tea and coffee. Age shows a negative correlation while gender, income level, expectation has showed a positive correlation. Gradient for the income level is the steepest for the preference of cola also and it is closer to the value of tea. Lowest gradient is offered in the factor expectation. So that, lower ages, males,

¹Screening was done to drop the respondents with inappropriate personal behaviors (smoking, chewing beetle, etc.) who regard as unfitting respondents for sensory analysis.

²Factors- Age (15-30,30-45, 45-60), Gender (male, female), Education level (<OL, OL, AL, Graduated), Income level (<25,000, 25-50,000, >50,000), Occupation (Government emp., Private emp., self-emp., none), Expectation (Taste, Quality, Price, Brand name, Health benefits)

³Statistical term stand for the acceptable probability in the hypothesis test

high income level and the expectation towards the brand is influence the perception of cola beverage.

The study conducted by [1]; has figure out that, 51% of the male and 49% of the female prefers cola as it doesn't impact by the gender. The variation of the result might be due to the behavioral pattern of Sri Lankan people with Indians.

Considered age groups, of the same research shows age below 15, 16-25, 26-35 shows higher response towards but with the ageing the response has declined. While the occupation was not tested statistically, it shows employers prefer more cola beverages than employees. The reason to purchase is collaborated on the same study, as it shows taste, brand name and packaging are effecting highly.

4. CONCLUSION

Perceptual response is a major influence which affects the consumer's sensitivity towards a product. Study shows, the significance of age, gender, income level and expectation towards the perceptual response of the respondents on tea, coffee and cola beverage.

With the ageing, people prefer tea and coffee rather than carbonated cola beverages, and the gender female is prominent in the fact. Lower income levels and the expectations towards taste like sensory attributes were high for natural caffeinated beverages considered. Study identifies the brand plays a major role in perceptual behavior for artificial caffeinated cola beverages.

The study conducted by [1] has come across with same fallouts for the beverage, Cola but the studies for the psychophysics of tea and coffee was rare. As this study covered an area of the Southern Province it may not complied with some other population, but according to some researches such human psychophysical behavior has less barriers for the applications in marketing. Nevertheless, the understanding of these influences can use to figure out the market on new product developments and enhancing strategies on persisting products.

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