

# FACTORS INFLUENCING ATTITUDES TOWARDS CLAIMS OF COOKING OIL

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## ABSTRACT

*Tujuan kajian ini adalah untuk menganalisa sikap konsumen terhadap klaim minyak goreng, dan untuk menginvestigasi faktor-faktor yang mempengaruhi sikap terhadap klaim tersebut. Data dikumpulkan dari 150 keluarga pada bulan Februari sampai April 2004. Sampel dipilih dari penduduk Bogor yang berjumlah 700 ribu orang. Wawancara tatap muka dilakukan untuk mendapatkan informasi dari responden. Beberapa pertanyaan dirancang untuk mengukur sikap terhadap klaim lima merek minyak goreng. Pernyataan klaim masing-masing merek diambil dari iklan tercetak dan label kemasan mereka, kemudian klaim tersebut dituliskan dalam bentuk pertanyaan sikap. Analisis frekuensi digunakan untuk memperlihatkan karakteristik demografi dan ekonomi responden, dan untuk menggambarkan sikap terhadap klaim. Analisis Multiple Discriminant digunakan untuk mengkaji faktor-faktor yang mempengaruhi sikap terhadap klaim dari merek minyak goreng. Hasil kajian menunjukkan bahwa klaim yang dilakukan oleh masing-masing merek minyak goreng hampir semuanya terkait dengan kesehatan, kemudian diikuti oleh metode pengolahan, dan karakteristik fisik dari minyak goreng. Kebanyakan responden menunjukkan sikap yang netral terhadap berbagai klaim masing-masing merek, khususnya terhadap klaim yang sulit dinilai seperti pengolahan berkali-kali, pengolahan terpadu, Omega 9, Omega 6, Vitamin E, dan Palmitic Acid. Beberapa responden juga yakin terhadap klaim yang dikemukakan oleh beberapa merek. Namun demikian, lebih banyak responden yang tidak mempercayai berbagai klaim tersebut. Analisis multiple discriminant menunjukkan bahwa ada variabel independen, yaitu pengeluaran rumah tangga, ukuran rumah tangga, dan usia responden yang mempunyai pengaruh yang signifikan terhadap klaim Omega 9. Ini mengindikasikan bahwa responden dengan rumah tangga yang lebih besar, mempunyai pengeluaran lebih besar dan yang lebih tua cenderung lebih mempercayai klaim tentang Omega 9 dibandingkan dengan rumah tangga yang lebih kecil, pengeluaran yang lebih kecil dan penduduk yang lebih muda.*

**Keywords :** *cooking oil, multiple discriminant analysis, pairwise comparison, attitude toward claims*

## INTRODUCTION

Cooking oil is one of the 9 primary products consumed by Indonesian families. The government implements a variety of programs and policies to make those primary products available with the price level affordable by all different income level of families. Indonesian culture makes families are more likely to use cooking oil more frequently in their cooking habits. Indonesian families use cooking oil in their food almost everyday. Therefore, cooking oil should always be available all over the country. The shortage of cooking

oil supplies usually will make higher price, as a result, many low income families are suffered. In most cases, the government is often to be criticized for its inability to provide cooking oil anytime, anywhere with reasonable price.

Indonesia with its population of 220 millions which consist of around 40 million households is a big market for cooking oil products. Cooking oil consumption grew along with population increase. Cooking oil is

consumed by households as well as industries especially food industry. It is estimated that cooking oil consumption in Indonesia is about 16.5 kg per capita per year ([www.202.145.6.102/bappepti/berjanka/data/cpoperkembangan.asp](http://www.202.145.6.102/bappepti/berjanka/data/cpoperkembangan.asp), accessed Nov 26, 2005 at 4:45 pm). Cooking oil consumed in Indonesia consists of palm cooking oil and coconut cooking oil and other cooking oil. About 83% of cooking oil consumed is palm cooking oil. It is estimated that cooking oil consumption in Indonesia reaches almost 5.5 million tons in 2004 ([www.bbj-jfx.co.id/products.asp?pmo2](http://www.bbj-jfx.co.id/products.asp?pmo2), accessed Nov 26, 2005 at 5 PM).

The cooking oil supplies are provided by about 79 cooking oil manufacturers. These producers make the cooking oil industry as monopsony market. There are a large number of branded cooking oil in the market, however, market also provide non-branded cooking oil for consumers. Household consumers have many choices of their cooking oil needs, buy branded or non-branded cooking oil, palm cooking oil, coconut cooking oil or other cooking oil. The majority of households living in cities usually buy branded cooking oil, however those living in rural areas or those with low income usually buy non-branded cooking oil. Non-branded cooking oil is usually consumed by food industries or food vendor who sell a variety of fried food products.

Consumers have many choices of different branded cooking oil. Cooking oil producers used a variety of marketing tools and programs to attract consumers to buy their brands. One of the most popular marketing tools used by many cooking oil producers is the use of healthy claims of their branded cooking oil. Cooking oil marketers used many advertising media including packaging label to introduce their product claim. The main concern of researcher and consumer educators are how the effect of this product claim to consumer decision making in buying and using a specific branded cooking oil, do consumers believe product claim?, how is consumers' attitude toward product claim. Public policy makers are also concern about this product claim whether the claim is true or false. If the claim is false and producers can not provide scientific evidence, then their claim is a deceptive advertising. Consumers may or may not believe the claim, however if they believe the false claim and they buy the brand based on their belief, therefore consumers are those who are misled by producers. Product claim is an important tools for producers to introduce their brands, however, product

claim may become important information used by consumers to make their decision. The purposes of this study are to examine consumer attitudes toward claim of branded cooking oil, and to investigate factors influencing attitudes towards claims.

## **THEORETICAL FOUNDATION AND LITERATURE REVIEW**

Attitude is an important factor that influences consumer decision. The concept of attitude is closely related to belief concept and behavior. Mowen and Minor (1998) stated that the term consumer attitude formation described relationships among belief, attitude, and behavior. Belief, attitude, and behavior are also related to the concept of product attributes. Product attribute are characteristics of product. Consumers usually have belief towards product attributes. Consumer belief is consumer knowledge about an object, its attributes, and benefits (Mowen and Minor, 1998). Therefore consumer knowledge is closely related to the attitude concept.

The Traditional Tricomponent of Attitudes (Schiffman and Kanuk, 2000) described that attitude has three components: cognitive, affective, and conative. The cognitive component represents a consumer's knowledge and belief about an object (an object may be a specific branded product, packaging, company, or other object). The affective component is a person's feeling about a specific object, The conative component represents an intention to behave toward a specific object.

Another perspective view attitude is different from its components. This model describes that attitude is determined by cognitive (beliefs) and affective (feelings) components, then attitude affects conative component (behavioral intention). Finally, behavioral intention will determine behavior.

This study examined consumer attitudes towards claims of several brands of cooking oils. Consumer attitudes in this study reflect consumer knowledge and experience about cooking oils. Their knowledge was reflected in their evaluation of cooking oil claims whether they believed in various claims as stated by brands in their packaging labels and advertising.

Suprihatini (1995a) investigated owners of small scale

industries' attitudes towards characteristics of cooking oils. The results of the study showed that rancidity, price, efficiency, taste of fried food, foaming when frying, smell, crispiness of fried food, and clarity were perceived to be important attributes of cooking oils. However, some attributes such as color, raw materials, freezing level, nutrient content, viscosity, cholesterol content, and packaging were considered less important.

Suprihatini (1995b) examined attitudes towards red palm cooking oil attributes among 180 respondents. The majority of respondents (91%) showed positive responses towards palm cooking oils that contained Vitamin A and E, and 85% also expressed positive feeling towards palm cooking oils that were non-cholesterol. However, a large majority of respondents (45%) had negative responses towards red palm cooking oil that had reddish color. The study analyzed respondents' intention to buy red cooking oil if the oils were available in the market, about 19% of respondents were interested to buy, 48% of respondents stated that they might be interested to buy, and the rest of respondents expressed neutral intention. The study also examined the relationships among attitudes toward red palm cooking oil attributes and intention to buy red cooking oils.

Achiruddin (1997) surveyed 150 households to find out how householder behavior of cooking oil usage. This study examined frequency of cooking oil buying, the places to buy cooking oil, the amount of cooking oil bought, the brands of cooking oils. The study also examined the relationships among characteristics of respondents and usage behavior of cooking oil. Furthermore, the study also used cluster analysis to classify respondents based on the economic and demographic characteristics of respondents.

Sumarwan (2000) examined the relationships among perceived popularity and quality of cooking oil brands and the brands of cooking oils used. The results of the study showed that BIMOLI was perceived the most popular brand of cooking oil, followed by FILMA. However, the brand perceived the best quality was FILMA. Although 50% of respondents viewed BIMOLI as the most popular brand, however only 16% of respondents used BIMOLI.

Recent study of cooking oil was conducted by Sastri (2003). Her study interviewed 100 respondents to find out perceptions of cooking oil attributes.

Respondents were asked to rank 15 attributes of cooking oils from the most important to the less important attributes. Using Thurstone analysis, the study showed that the most important attribute (first rank) of cooking oil was price, followed by non-cholesterol, and nutrient fortification (such as Vitamin A, E, Omega 9). The study also used cluster and CHAID analyses to classify respondents based on psychographic variables. Respondents were asked to express their agreement to series of questions related to respondents' activities, interests, and opinions.

## METHODS

### Sampling Technique

Data were collected from 150 families in February through April 2004. The samples were selected from the population of Bogor which have 700 thousand people. Bogor is located around 60 km south of Capital City of Jakarta. Bogor is divided into six districts (known as Kecamatan). In each district, there are some housing complexes, then a housing complex is randomly selected from each of six districts. A number of families then were randomly selected from each housing complex. The number of families selected represented the proportion of the population of each district in Bogor. Face to face interview was conducted to collect information from respondents.

### Variable Descriptions

#### *Attitudes Towards Cooking Oil Claims*

Attitudes Towards Cooking Oil Claims were defined as respondent assessment to which he/she perceives that a specific branded cooking oil possesses a particular attribute. A specific branded cooking oil may have claims of several health attributes in its packaging label or marketing campaign. A respondent was presented with several questions which described cooking oil attributes claimed by some branded products. Each question is measured with ordinal scales, from scale 1 representing Not Believe, 2=neutral, 3=Believe. Respondents were asked to evaluate their belief in various claims made by five branded cooking oils. Table 1 presents various claims made by each of five brands of cooking oil.

Table 1. Five Brands of Cooking Oil with their Health Claims

BIMOLI	FILMA	TROPICAL	AVENA	SANIA
Bimoli is processed by Multi Processing	Filma is clear cooking oil	Tropical is processed by double fractionated	Avena contains flavor flock to keep the original food taste	Sania contains no preservatives to keep young
Bimoli contains Omega 9 which keep blood cholesterol level	Filma is processed by Integrated Processing	Tropical will not be foggy when it is in the freezer	Avena get hot faster to make food ready to eat fast	Sania contains Vit E that neutralize free radicals, to reduce cancer growth, and heart attack risk
Bimoli contains Palmitic Acid to protect it from heat	Filma contains Provitamin A, Omega 9, Omega 6 which are good for health	Tropical contains the highest Omega 9	Avena is cholesterol free	Sania is cholesterol free
Bimoli make anymeal more delicious and healthy	Filma is Cholesterol free	Tropical helps to lower blood cholesterol level	Avena contains Beta Carotene, Omega 9, and Vitamine E	Sania is processed by double fractionated
	Filma is a healthy cooking oil		Avena has clear and golden yellow color	

**Demographic and Economic Characteristics of Respondents**

Variables describing demographic and economic characteristics of respondents include age, sex, education level, marital status, employment status, household expenses, and household size.

**Data Analyses**

Frequency analysis was utilized to present the characteristics of demographic and economic of respondents, and to describe attitudes towards claims of cooking oils. Discriminant analysis is employed to examine factors influencing attitudes towards claims of cooking oils. Discriminant analysis is a technique for analyzing data the dependent variable is categorical and the independent variables are interval. Discriminant analysis techniques are formulated by the number of categories the dependent variable has. When the dependent variable has two categories, the technique is called simple discriminant analysis. When the dependent variable has more than two categories, the technique is known as multiple discriminant analysis. This study used multiple discriminant technique with the following equation which involves linear combination form:

$$D = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_kX_k$$

D = discriminant score reflecting the dependent variable of the model

b= discriminant coefficient or weight

X= predictor or independent variable.

The dependent variable in the model is attitudes towards claim which has three categories: Not Believe, Neutral, and Believe. The independent variables are education, age of respondents, household size, household expenses, and brand user.

**RESULTS AND DISCUSSION**

**Respondent Characteristics**

Table 2 presents characteristics demographic and economic of respondents. About 97 percent of respondents are women. Women (they were usually adult women who were wives) were selected to be the respondents because they were considered to be the decision makers in choosing the specific brand of cooking oil used in their households. Therefore women have strong influence in deciding which brands of cooking oil that will be bought. Thus, the attitudes toward claims examined in this study reflect belief and perception of women in the household.

Table 2. Respondents' Characteristics

Gender	% (n=150)
Female	97.3
Male	2.7
Age	% (n=150)
20 – 30 years	20.13
31- 40	30.20
41- 50	24.83
>=51	24.83
Employment Status	% (n=150)
Household Wives	61.3
Government Officers	9.3
Company Staffs	14.70
Self Employed	7.30
University Students	2.70
Retired	2.70
Nurse	2.00
Education	% (n=150)
Elementary/Junior high	8.80
Senior High	42.00
College Education	49.40
Marital Status	% (n=150)
Married	89.30
Widowed	8.00
Single	2.70
Household Monthly Expenses	% (n=150)
< Rp 1 million rupiahs	10.00
1 – 2.5 million rupiah	51.40
> 2.5 million rupiah	38.60

The age composition of respondents is almost equally distributed among ranges between 20 to 50 years old. More than 60 percents of respondents are household wives, however there are a large number of respondents who work outside home, they are career women. They work as government officers, company staffs, self-employed and registered nurse. A small number of respondents are university students and retired.

Respondents with university education show an equal number with those with senior high school education or less. About 49.4 percent of respondents have university education. This number is relatively high compared to the education level of the majority of Indonesian people. The majority of respondents are married, thus they are family households.

Household expenses in this study are defined as the amount of money spent by all household members for food and non-food items per month. Only a small percentage of respondents (10%) who spent less than Rp 1 million per month, whereas the majority of respondents (51%) spent between Rp1 – Rp 2.5 millions. A large number of respondents (38%) spent more than Rp 2.5 millions for all household expenses. The respondents in this study represent high income group of population. National Socio Economic Survey that gathers national data every three year shows that only 6% of the Indonesian population spent more Rp 500 thousand (monthly per capita expenditure) (Badan Pusat Statistik, 2003). At the time of data collection, US \$1 equals Rp 9000.

### Attitudes Towards Claims

Several questions were constructed to measure attitudes toward five brands of cooking oil claim. Claim statements of each brand were cited from printed advertising and packaging labels of each brand, then the statements were written in the form of attitude questions. Claims made by the brands are mostly health related items, then followed by processing method, and physical characteristics of cooking oil. Health claims made include Omega 9, Omega 9, Vitamin E, ProVitamin E, Beta Carotein, Non-Cholesterol, Non-Preservatives, Lowering blood cholesterol, and healthy cooking oil for food. The processing method claims include multi processing, integrated processing, double fractionated. The Physical characteristics of cooking oil claims consist of having Palmitic Acid, clear and golden yellow color, non-fogy, flavor flock, and getting hot faster. Other claim includes making food becomes delicious and healthy.

Table 3 through 7 present respondents' attitudes towards various claims made by five brands of cooking oil. The large number of respondents stated to be neutral to most of claims statement made by brands. As can be seen in Table 3, more than 50% of respondents expressed their feeling to be neutral to three of the four claims made by brand BIMOLI. About 60% of respondents said to be neutral to two of the five claims made by brand FILMA. Attitudes toward claims made by brand TRØPICAL also present similar figures, more than 45% of respondents described as being neutral to three of the four claims. In addition, about

60% of respondents perceived to be neutral to all claims made by brand AVENA. Furthermore, more than 40% of respondents had neutral perception towards three of four claims made by brand SANIA.

Being neutral may have different meaning to respondents. They may not understand nor hear with a specific claim mentioned by a specific brand. They may not have knowledge about specific claim stated by a brand of cooking oil. As a result, respondents cannot judge whether they believed or did not believe in a specific claim. Therefore, respondents chose to be neutral as the best way to express their feeling towards claims that they did not understand or have enough knowledge. Respondents had different educational level and background. The majority of respondents with college educational level are assumed to have study programs not related with food or food industry. Thus, they might have difficulties to evaluate claims that they were not familiar nor understand. The large majority of respondents perceived to be neutral to claims which are difficult to assess, such as claims of multi processing, integrated processing, Omega 9, Omega 6, Vit E, Palmitic Acid.

Some respondents also believe in specific claims made by some brands of cooking oil. However, there were more respondents who did not believe in claims as compared to those who believed. The figures are similar for all brands. However, some claims of some brands were believed by a larger percentage of respondents. A larger number of respondents believed in BIMOLI as having Multi Processing and Omega 9

as compared to those who did not believe. About 66% of respondents assessed FILMA to have clear color. Assessing the color of cooking oil is easier for respondents, thus they can evaluate FILMA's color whether it is clear or not as it has been claimed by FILMA's packaging label or advertising.

More respondents also believed FILMA to have Pro Vit E, Omega 9, Omega 6, Non-Cholesterol, and to make healthy food than those who did not believe. The majority of respondents (60%) also believe TROPICAL processed through double fractionated, and more respondents believe TROPICAL to have highest Omega 9 as compared to those who did not believe. A larger number of respondents also believed SANIA to have Vit E, Non-Cholesterol, and to be processed through double fractionated than those who did not believe.

Some claims are difficult to prove such as multi processing, Omega 9, Omega 6, and non-cholesterol, however many respondents believe in those specific claims. Why respondents believe in specific claims made by some brands of cooking oil even though they are difficult to prove?. Respondents' belief may be based on their knowledge or perception that the brands of cooking oil would advertise true claims. Some brands have been in the market for years, some of them are market leader in cooking oil. They have campaigned through different media. Many respondents have known the brands, even they have consumed those brands. Therefore, they believe in claims made by the brands, even they are difficult to prove.

Table 3. Respondents' Attitudes toward Claims Made by Brand BIMOLI of Cooking Oil

BIMOLI	Not Believe (%)	Neutral (%)	Believe (%)	TOTAL (%) (n=150)
Multi Processing	18.00	52.00	30.00	100
Omega 9	18.67	52.67	28.67	100
Palmitic Acid	24.67	55.33	20.00	100
Delicious and Healthy	32.67	35.33	32.00	100

Table 4. Respondents Attitudes toward Claims Made by Brand FILMA of Cooking Oil

FILMA	Not Believe (%)	Neutral (%)	Believe (%)	TOTAL (%) (n=150)
Clear	8.67	25.33	66.00	100
Integrated Processing	20.00	60.00	20.00	100
ProVit E, Omega 9, Omega 6	15.33	62.67	22.00	100
Non-Cholesterol	20.67	48.00	31.33	100
Healthy	18.00	45.33	36.67	100

Table 5. Respondents' Attitudes toward Claims Made by Brand TROPICAL of Cooking Oil

TROPICAL	Not Believe (%)	Neutral (%)	Believe (%)	TOTAL (%) (%, n=150)
Double Fractionated	12.00	28.00	60.00	100
Non-Fogy	22.00	54.00	24.00	100
Highest Omega 9	18.00	57.33	24.67	100
Lower Blood Cholesterol	27.33	46.00	26.67	100

Table 6. Respondents' Attitudes toward Claims Made by Brand AVENA of Cooking Oil

AVENA	Not Believe (%)	Neutral (%)	Believe (%)	TOTAL (%) (%, n=150)
Flavor Flock	30.00	65.33	4.67	100
Hot Faster	32.00	65.33	2.67	100
Non-Cholesterol	24.67	64.00	11.33	100
Beta Carotein, Omega 9, Vit E	23.33	69.33	7.33	100
Clear and Golden Yellow Color	24.00	60.00	16.00	100

Table 7. Respondents' Attitudes toward Claims Made by Brand SANIA of Cooking Oil

SANIA	Not Believe (%)	Neutral (%)	Believe (%)	TOTAL (%) (%, n=150)
Non-preservatives	48.67	34.00	17.33	100
Vit E	17.33	54.00	28.67	100
Non-Cholesterol	16.00	42.00	42.00	100
Double Fractionated	12.67	57.33	30.00	100

### Factors Influencing Attitudes towards Claims

Multiple discriminant analysis is used to examine factors affecting attitudes towards claims. Multiple discriminant analysis is a statistical model to investigate the relationships between a set of independent variables and a dependent variable. The dependent variable in multiple discriminant analysis has more than three categorical responses, whereas the dependent variable in simple discriminant analysis is dichotomous response (1 or 0). The dependent variable in the model is attitudes toward BIMOLI's claim of containing Omega 9. The measurement of this variable is an ordinal scale with three response categories: 1= Not believe, 2=Neutral, 3=Believe. Therefore, there are three categories of respondents in response to the claim of Omega 9: those who did not believe, those who were neutral, and those who believed. The independent variables include education, age of respondents, household expenses, household size, and brand user. Age of respondents, household expenses, and household size are measured with interval scales.

Brand user is a nominal variable with two categories. Respondents who used Bimoli cooking oil is coded 1, whereas those who did not use are coded 0.

The purposes of multiple discriminant analysis are 1) to test whether there are significant differences of three categories of respondents in their age, household size, household expenses, and brand user; 2) to examine which independent variables that significantly differentiate among three categories of respondents; 3) to predict a respondent category whether she/he believe, is neutral, does not believe in BIMOLI's claim of Omega 9. SPSS was used to analyze the data. Stepwise method was used to determine the discriminant model.

The results of discriminant analyses are presented with several tables. Table 8 presents the result of Test of Equity of Group Means. This table provides information whether there are significant differences of three responden groups for each independent variable.

Table 8. Tests of Equality of Group Means

Variables	Wilks' Lambda	F	df1	df2	Sig.
Education	0,984	1,194	2	147	0,306
Household expenses	0,955	3,433	2	147	0,035
Household size	0,928	5,738	2	147	0,004
Age	0,914	6,873	2	147	0,001
Brand user	0,999	0,072	2	147	0,93

Using 0.05 significant level, it can be concluded that three variables (age, household expenses, and household size) had significant influence in explaining attitudes towards BIMOLI's claim of Omega 9. These results suggest that respondents with different age had different attitudes towards BIMOLI's claim of Omega 9. Respondents with different household expenses also showed different attitudes towards BIMOLI's claim of Omega 9. Finally, respondents' attitudes toward BIMOLI's claim of Omega 9 are different among those with different household size. Two other variables: education and brand user are not significant in the model.

The next step was to enter the significant variables in Table 8 to determine discriminant function, therefore there are three variables included in the model (age, household size, and household expenses). The result of this step is presented in Table 9.

In the first step, one variable (age of respondents) was entered in the model, resulting the value of Wilks' Lambda of 0.914. This means that 91.4% of variance in respondents' attitudes cannot be explained by differences in age. Two variables (age and household size) were entered in the second step, resulting lower value of Wilks Lambda to 0.848. In the third step, three

variables (age, household size, and household expenses) were entered in the model, resulting the value of Wilks Lambda became smaller to 0.796. Smaller value means that the unexplained variance became smaller. This indicates a better model of discriminant function. After examining the value of Wilks' Lambda, the next step is to analyze the pairwise group comparisons of three categories of respondents' attitudes towards claim of Omega 9 as presented by Table 10.

Table 10 provides information of distance differences among categories of respondents. In the first step, when age as the independent variable entered in the model, the largest distance differences (12.836) was found between respondents who did not believe and those who believed in claim, whereas the smallest distance differences was between those who did not believe and those who were neutral. This means that the largest differences in age was found between those who did not believe and those who believed in claim. In the second step, two variables (age and household size) entered as the independent variables, therefore distance differences represent the differences in age and household size among three categories of respondents. The largest differences in age and household size (7.05) were found between those who

Table 9. Wilks' Lambda

Step	Number of Variables	Lambda	df1	df2	df3	Exact F Statistic	df1	df2	Sig.
1	1	0,914	1	2	147	6,873	2	147	0,001
2	2	0,848	2	2	147	6,272	4	292	0
3	3	0,796	3	2	147	5,828	6	290	0

Table 10. Pairwise Group Comparisons

Step	Attitudes Towards BIMOLI's Claim of Omega 9		Not Believe	Neutral	Believe
1	Not believe	F		2.843	12.836
		Sig.		0.094	0
	Neutral	F	2.843		6.939
		Sig.	0.094		0.009
	Believe	F	12.836	6.939	
		Sig.	0	0.009	
2	Not believe	F		6.342	7.05
		Sig.		0.002	0.001
	Neutral	F	6.342		5.767
		Sig.	0.002		0.004
	Believe	F	7.05	5.767	
		Sig.	0.001	0.004	
3	Not believe	F		7.601	6.366
		Sig.		0	0
	Neutral	F	7.601		4.04
		Sig.	0		0.009
	Believe	F	6.366	4.04	
		Sig.	0	0.009	
a	1. 147 degrees of freedom for step 1.				
b	2. 146 degrees of freedom for step 2.				
c	3. 145 degrees of freedom for step 3.				

did not believe than those who believed as compared to others group comparison.

In the third step, three independent variables (age, household size, and household expenses) entered in the model, thus the distance differences represent differences in age, household size, and household expenses among categories of respondents. The largest differences (7.601) was found between group of respondents who did not believe and those who were neutral in their attitudes towards claim, followed by differences between those who did not believe and those who believed (6.37)

Multiple discriminant analysis with three categories of group produced two discriminant functions. The first function will discriminate a respondent to be group 1 (not believe) or group 2 (neutral). The second function

will discriminate a respondent to be group 2 (neutral) or group 3 (believe). Table 11 presents the eigenvalue of two discriminant functions. For each discriminant function, the eigenvalue is the ratio of between-group to within-group sum of squares. Large eigenvalues reflect strong function. The eigenvalue of 0.160 indicates that the variance of dependent variable (attitudes towards claims) can be explained by the first discriminant function, whereas the second discriminant function can explain 34% of variance in attitudes towards claim.

Table 11 also contains canonical correlation which measures the extent of association between the discriminant scores and the groups. It is a measure of association between the single discriminant function and the set of dummy variables that define the group

Table 11. Eigenvalues

Function		% of Variance	Cumulative %	Canonical Correlation
1	,160	66,0	66,0	,371
2	,082	34,0	100,0	,276
a	First 2 canonical discriminant functions were used in the analysis.			

membership. The canonical correlations as presented in Table 11 indicate the magnitude of relationship between discriminant function and respondent groups. The value of 0.371 (coefficient ranges from 0 to 1) represent the relatively strong correlation between the first discriminant function and respondent groups. The value of 0.276 (coefficient ranges from 0 to 1) represent the relatively strong correlation between the second discriminant function and respondent groups.

Further analyses of two discriminant functions were to test the following hypotheses

Ho: No centroid difference between two discriminant functions (no differences in age, household size, household expenses between the two discriminant functions).

H1: There are centroid differences between two discriminant functions

The centroid is the mean values for the discriminant scores for a particular group. There are as many centroids as there are groups, as there is one for each group. The means for a group on all the functions are the group centroids. The results of discriminant analysis as presented by Table 12 can be used to test the hypotheses. To test the hypotheses, the value of Wilks' Lambda in the first row (1 through 2) were used by transforming into Chi square. By using the significant level of 0.05, the Ho hypothesis is rejected because the value of Chi-square had significant level of 0.002 which was less than 0.05. It can be concluded that

Table 12. Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	,796	33,245	6	,000
2	,924	11,573	2	,003

there were significant centroids differences between the two discriminant functions, which means attitudes towards claims of Omega 9 are different among respondents with different age, household size and household expenses.

The second row of Table 12 represents the second discriminant function which described differences between those who were neutral and those who believed in claim of Omega 9, the hypotheses were as followed:

Ho: No centroid differences of the second discriminant function between respondents with neutral attitudes and those who believed in claims (no differences in age, household size and household expenses between the two groups of respondents)

H1: There are centroid differences second discriminant function between respondents with neutral attitudes and those who believed in claims

By using the significant level of 0.05, the Ho hypothesis was rejected because the significant level of Chi square test (0.03) was less than 0.05. This indicated that there were significant differences in ages, household size and household expenses between respondents who were neutral and those who believed in claims.

The final result of discriminant analysis was to present two discriminant functions with their coefficients as presented Table 13. This model is used to predict respondents to which groups she or he was classified. The model is good and accurate when the prediction of respondents' classification is the same with his/her real observation.

## CONCLUSIONS

Claims made by the brands of cooking oils are mostly health related items, then followed by processing method, and physical characteristics of cooking oil. The results of the study showed that majority of respondents had neutral attitudes towards various claims stated by five brands of cooking oils, especially towards claims which are difficult to assess, such as claims of multi processing, integrated processing, Omega 9, Omega 6, Vitamin E, Palmitic Acid. Some respondents also believed in specific claims made by some brands of cooking oil. However, there were more respondents who did not believe in claims as compared to those who believed.

Three independent variables: household expenses, household size and age of respondents had significant effects on attitudes towards claim of Omega 9. This indicated that respondents with larger household were more likely to believe in claim of Omega 9 than were those with smaller household. Respondents who spent larger expenses were more likely to believe in claim of Omega 9 as compared to those who spent less. Finally, older respondents were more likely to believe in claim of Omega 9 than younger respondents.

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