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Ooi Shal Peng
DECEMBER 2008

Abstract

The purpose of the study is to examine the consumers' attitude towards functional foods and purchase behavior. Basically, the attributes involve are knowledge and awareness, believe in nutrition and health and self motivation. Total of 300 questionnaires were distributed to the respondents. Subsequently, the data that derived from the survey will be statically analyzed by using the Statistically Package for Social Sciences programme (SPSS) version 14.0. The finding shown that the predictors of knowledge and awareness believe in nutrition and health and self motivation were all significant that indicate the relationship towards the moderator of consumers' attitude. In additional, the finding also supported that consumers' attitude towards functional foods has significant related with purchase towards functional foods. Consumers' attitude towards functional foods in the study is likely to have affected their purchase of functional foods. Therefore, for implication, it raise up an interesting results for manager when they want to come out with marketing strategies to reach their target market effectively, as the study demonstrated the important of market attributes towards consumers' attitude. Future research, consumers need clear understand of functional foods and a strong level confidence in the scientific criteria that are used to document health effects and claims where most of them already making changes to improve the healthfulness of their diets, yet still more can be done to increase their knowledge about benefits of functional foods. By understanding how the factors interact, this could help the managers make important decisions about consumers' attitude towards functional foods and purchase behaviour in Malaysia contest.

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Appendix1: Questionnaire

Functional Foods are foods and food components that provide a health benefit beyond basic nutrition.
Examples: Carrots (Carotenoids), Oats (Dietary Fiber), Fruits/ Vegetable (Flavonoids), Soybeans (Soy Protein), Onions (Sulfides)

Please answer the questions below. Please tick ONE answer for each statement.

1. How do you rate yourself healthy compared to people your age group?	Poor	Below Average	Average	Above Average	Excellent
	1	2	3	4	5
2. On average, how often do you purchase functional foods per month?	Not at all	Once a week	Sometime	Often	Very Often
	1	2	3	4	5
3. What do you think about the importance of overall diet balanced?	Not very Important	Some what Important	Neutral	Some what Important	Very Important
	1	2	3	4	5
4. How likely will you purchase functional foods in the near future?	Never	Unlikely	Likely	Very likely	Certainly
	1	2	3	4	5

5. Please state the estimated monthly expenditure that you spend on functional foods.
   Do not purchase any   □
   Less than RM10   □
   From RM11 to RM20   □
   More than RM20   □
   Others: Please specify;   □…………………….

   6. The meaning of Functional Foods to me is, (TICK ONE ONLY)

Foods and food components that provide a health benefit beyond basic nutrition.

☐

Similar in appearance to, or may be, a conventional food, which is consumed as part of a usual diet and is demonstrated to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions.

☐

Potentially healthful products that may include any modified food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains.

☐

Functional food is satisfactorily demonstrated to affect beneficially one or more target functions in the body, beyond adequate nutritional effects, in a way that is relevant to either improved stage of health and well-being and/or reduction of risk of disease.

☐

7. The statements below are about your opinion on functional foods and health. Please circle the appropriate number to indicate your agreement/ disagreement. There is no right or wrong answers.

STATEMENT	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
Eating health-enhancing foods is beneficial for me……………………………………………..	1	2	3	4	5
I believe that certain foods have health benefits that go beyond basic nutrition and may reduce the risk of disease……………………………………………....	1	2	3	4	5
Functional foods are only a temporary fad, they are here today and will be gone tomorrow………………………………...............	1	2	3	4	5
I trust that functional foods provide a health benefit beyond basic nutrition……………………………	1	2	3	4	5
I'm interested in consuming a wide variety of foods for health benefits………………………………..	1	2	3	4	5
Some foods have specific health benefits that reduce the risk of developing chronic disease……...	1	2	3	4	5
Functional foods include whole, enriched, or enhanced foods that have ingredients incorporated into them to provide a specific health benefit…………………...................................	1	2	3	4	5
The only foods that can be categorized as functional foods are foods with a health claim on the nutritional label………………………....................	1	2	3	4	5
Eating is a better way to obtain health-enhancing substances than taking dietary supplements like vitamins……………………………………………	1	2	3	4	5
Functional foods should not replace a healthy diet, but should be consumed as part of a varied diet……………………………………………………	1	2	3	4	5
I strongly agree foods can be used to reduce use of drugs/ other medical therapy……………………………	1	2	3	4	5
I strongly agree foods contain active components that improve short term health………………………………	1	2	3	4	5

I strongly agree foods contain active components that improve long term health…………………......................	1	2	3	4	5
I always or usually choose foods for specific medical purposes………………………….............................	1	2	3	4	5
I heard a lot/some about functional foods………….....	1	2	3	4	5

8. Different people have different reasons for using functional foods. This question is about why you buy functional foods. Please circle the number that closely reflects the importance of each statement that influences you to purchase functional foods.

STATEMENT	Not Very Important	Some what Not Important	Neutral	Somewhat Important	Very Important
I purchase functional foods to ensure overall good health…………………………………	1	2	3	4	5
I take functional food to slow down the ageing process…………………………………	1	2	3	4	5
I take functional foods to reduce the risk of a specific condition or illness…………………	1	2	3	4	5
I take functional foods to manage my stress and allergies…………………………………	1	2	3	4	5

9. The statements below are related to what people do about functional foods. Please circle the appropriate number to indicate your agreement/ disagreement. There is no right or wrong answers.

STATEMENT	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I enjoy consuming functional foods………...	1	2	3	4	5
I enjoy introducing functional foods to my friends and family…………………………..	1	2	3	4	5
I consume functional foods because 'I want to' and not because 'I have to'……………...	1	2	3	4	5
I enjoy searching information about functional foods…………………………….	1	2	3	4	5
Consume functional foods makes me feel good and as a healthy person………………	1	2	3	4	5
I consume functional foods when I fall sick..	1	2	3	4	5

10. Please read each statement and circle a number which indicate how much the statement applied to you ever the past 12 months. There is no right or wrong answer.

STATEMENT	Do Not Apply To Me At All	Applied To Me some of the time	Applied To Me a good part of the time	Applied To Me Most of the time
I found it hard to wind down…………..................	0	1	2	3
I found it difficult to relax………………………….	0	1	2	3
I felt that I was using a lot of nervous energy……..	0	1	2	3
I found myself getting agitated…………………..	0	1	2	3
I tended to over-react to situations…………………	0	1	2	3
I felt that I was rather touchy………………..........	0	1	2	3
I was intolerant of anything that kept me from getting on with what I was doing…………………..	0	1	2	3

11. This question is about your awareness on some of the changes that took place. Please indicate if you had personally experienced the following biological changes in the past 12 months by putting a tick "✓" in the relevant box.

Changes/Events		**Changes/Events**	
Hospitalization/ rehabilitation	☐	High blood pressure	☐
Hearing Impairment	☐	Urinary disorder (incontinence)	☐
Needing assistance in day-to-day livings (e.g. mobility impairment)	☐	Eye problem that cannot be corrected with glasses	☐
Chronic orthopedic, back or spine problem	☐	Nervous system disorder	☐
Stroke	☐	Diabetes	☐
Heart or circulatory disorder	☐	Respiratory disorder	☐
Arthritis or rheumatism	☐	Mental disorder	☐

12. Overall, please rate how satisfied you are with your life. Please **circle** the answer that comes closest to reflect how you feel.

STATEMENT	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
In most ways my life is close to my ideal.	1	2	3	4	5
The conditions of my life are excellent.	1	2	3	4	5
I am satisfied with my life.	1	2	3	4	5
So far I have gotten the important things I want in life.	1	2	3	4	5
If I could live my life over, I would change almost nothing.	1	2	3	4	5

13. Most people seem to have other "ages" besides their official age or "date of birth" age. The questions that follow have been developed to find out about your "unofficial" age. Please **circle** the appropriate number to show which group **you THINK you really belong to**: teens, twenties, thirties, forties, fifties, sixties, seventies, or eighties.

STATEMENT	10's	20's	30's	40's	50's	60's	70's	80's
I feel as though I am in my…	10's	20's	30's	40's	50's	60's	70's	80's
I look as though I am in my…	10's	20's	30's	40's	50's	60's	70's	80's
I do most things as though I were in my…	10's	20's	30's	40's	50's	60's	70's	80's
My interests are mostly of a person in his or her…	10's	20's	30's	40's	50's	60's	70's	80's

14. Please tick in the relevant box and fill in the blanks when necessary

Gender ☐ Male ☐ Female

Citizenship ☐ Malaysian
☐ Others, please state: _____

Year of birth ☐ Please state:_____

Ethnic Group ☐ Malay ☐ Indian
☐ Chinese ☐ Others, please state:_____

Marital status ☐ Single ☐ Married with children
☐ Married

Education ☐ PMR/SPM or below ☐ Diploma
☐ Degree/Professional Certificates ☐ Post Graduate
☐ Others, please state: _____

Occupation ☐ Professional ☐ Executive
☐ Manager ☐ Non-Executive
☐ Self-employed/Own Business ☐ Not working/Retired
☐ Student ☐ Others, please state: _____

Estimated current household Income
☐ Less than RM 1,499 ☐ RM1,500 - RM2,999
☐ RM3,000 - RM3,999 ☐ RM4,000 - RM4,999
☐ RM5,000 - RM5,999 ☐ RM6,000 and above

Approximately how many different prescription drugs (medication given by doctor) do you presently take?
Please specify; …..

Appendix 2: Estimated and Forecasted Market for UK Functional Food and

Beverage Products 1998 to 2007

Source: Factsheets- functional foods by Food & grocery information, insight and best practice. Date of publication: 4 April 2007.

Appendix 3: SPSS result
Demographic profile

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	127	42.3	42.3	42.3
	Female	173	57.7	57.7	100.0
	Total	300	100.0	100.0	

respondent's citizenship

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malaysian	291	97.0	97.0	97.0
	Others	9	3.0	3.0	100.0
	Total	300	100.0	100.0	

year of birth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-29	145	48.3	48.3	48.3
	30-39	101	33.7	33.7	82.0
	40-49	38	12.7	12.7	94.7
	50-59	16	5.3	5.3	100.0
	Total	300	100.0	100.0	

ethic group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	104	34.7	34.7	34.7
	Chinese	143	47.7	47.7	82.3
	Indian	45	15.0	15.0	97.3
	Others	8	2.7	2.7	100.0
	Total	300	100.0	100.0	

marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	158	52.7	52.7	52.7
	Married	49	16.3	16.3	69.0
	Married with children	93	31.0	31.0	100.0
	Total	300	100.0	100.0	

education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PMR/SPM or below	30	10.0	10.0	10.0
	Degree/Professional Certificate	116	38.7	38.7	48.7
	Diploma	102	34.0	34.0	82.7
	Post Graduate	41	13.7	13.7	96.3
	Others	11	3.7	3.7	100.0
	Total	300	100.0	100.0	

occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Professional	32	10.7	10.7	10.7
	Manager	54	18.0	18.0	28.7
	Self-employed/own business	29	9.7	9.7	38.3
	Student	14	4.7	4.7	43.0
	Executive	97	32.3	32.3	75.3
	Non-Executive	42	14.0	14.0	89.3
	Not working/ retired	15	5.0	5.0	94.3
	others	17	5.7	5.7	100.0
	Total	300	100.0	100.0	

estimated current household income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than RM1,499	56	18.7	18.7	18.7
	RM3,000 - RM3,999	67	22.3	22.3	41.0
	RM5,000-RM5,999	30	10.0	10.0	51.0
	RM1,500-RM2,999	75	25.0	25.0	76.0
	RM4,000-RM4,999	30	10.0	10.0	86.0
	RM6,000 and above	42	14.0	14.0	100.0
	Total	300	100.0	100.0	

Reliability- Attitude

Warnings

The covariance matrix is calculated and used in the analysis.

Case Processing Summary

		N	%
Cases	Valid	300	100.0
	Excluded[a]	0	.0
	Total	300	100.0

a. Listwise deletion based on all
   variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.846	.846	4

Inter-Item Correlation Matrix

	eating health-enhancing foods is beneficial for me	believe certain foods have health benefit beyond basic nutrition and reduce risk	trust functional foods provide health benefit beyond basic nutrition	interested in consuming wide variety of foods for health benefits
eating health-enhancing foods is beneficial for me	1.000	.681	.496	.579
believe certain foods have health benefit beyond basic nutrition and reduce risk	.681	1.000	.537	.583
trust functional foods provide health benefit beyond basic nutrition	.496	.537	1.000	.599
interested in consuming wide variety of foods for health benefits	.579	.583	.599	1.000

The covariance matrix is calculated and used in the analysis.

Reliability- knowledge and awareness

Warnings

The covariance matrix is calculated and used in the analysis.

Case Processing Summary

		N	%
Cases	Valid	300	100.0
	Excluded^a	0	.0
	Total	300	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.757	.760	5

Inter-Item Correlation Matrix

	some foods have specific health benefit reduce risk of developing chonic disease	include whole, enriched, or enhanced foods that have ingredient incorporated into them	foods that can categorized as functional foods are foods with health claim on nutrition label	eating is better way to obtain health enhancing sustances compare taking dietary supplement	functional foods should not replace health diet, but should consumed as part of varied diet
some foods have specific health benefit reduce risk of developing chonic disease	1.000	.535	.141	.355	.413
include whole, enriched, or enhanced foods that have ingredient incorporated into them	.535	1.000	.386	.387	.428
foods that can categorized as functional foods are foods with health claim on nutrition label	.141	.386	1.000	.407	.224
eating is better way to obtain health enhancing sustances compare taking dietary supplement	.355	.387	.407	1.000	.600
functional foods should not replace health diet, but should consumed as part of varied diet	.413	.428	.224	.600	1.000

The covariance matrix is calculated and used in the analysis.

Reliability- Belief about nutrition and health

The covariance matrix is calculated and used in the analysis.

Case Processing Summary

		N	%
Cases	Valid	300	100.0
	Excluded[a]	0	.0
	Total	300	100.0

a. Listwise deletion based on all
   variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.797	.799	4

Inter-Item Correlation Matrix

	foods can reduce use of drug/other medical therapy	foods contain active components that improve short term health	foods contain active components that improve long term health	heard alot/some about functional foods
foods can reduce use of drug/other medical therapy	1.000	.494	.555	.497
foods contain active components that improve short term health	.494	1.000	.601	.395
foods contain active components that improve long term health	.555	.601	1.000	.454
heard alot/some about functional foods	.497	.395	.454	1.000

The covariance matrix is calculated and used in the analysis.

Reliability- Self Motivation

Warnings

The covariance matrix is calculated and used in the analysis.

Case Processing Summary

		N	%
Cases	Valid	300	100.0
	Excluded[a]	0	.0
	Total	300	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.853	.854	4

Inter-Item Correlation Matrix

	purchase functional foods to ensure overall good health	take fucntional foods to slow down the ageing process	take functional foods to reduces the risk of specific condition or illness	take functional foods to manage my stress and allergies
purchase functional foods to ensure overall good health	1.000	.651	.616	.453
take fucntional foods to slow down the ageing process	.651	1.000	.598	.604
take functional foods to reduces the risk of specific condition or illness	.616	.598	1.000	.642
take functional foods to manage my stress and allergies	.453	.604	.642	1.000

The covariance matrix is calculated and used in the analysis.

Reliability-Like/ Affect

Warnings

The covariance matrix is calculated and used in the analysis.

Case Processing Summary

		N	%
Cases	Valid	300	100.0
	Excluded[a]	0	.0
	Total	300	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.631	.747	5

Inter-Item Correlation Matrix

	foods can reduce use of drug/other medical therapy	foods contain active components that improve short term health	foods contain active components that improve long term health	choose foods for specific medical purposes	heard alot/some about functional foods
foods can reduce use of drug/other medical therapy	1.000	.494	.555	.195	.497
foods contain active components that improve short term health	.494	1.000	.601	.121	.395
foods contain active components that improve long term health	.555	.601	1.000	.125	.454
choose foods for specific medical purposes	.195	.121	.125	1.000	.278
heard alot/some about functional foods	.497	.395	.454	.278	1.000

The covariance matrix is calculated and used in the analysis.

Purchase and non-purchase

Statistics

purchase

N	Valid	300
	Missing	0

purchase

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	42	14.0	14.0	14.0
	2.00	258	86.0	86.0	100.0
	Total	300	100.0	100.0	

Mean Comparison between independent and dependent variable with gender of consumers'

Group Statistics

	respondent's gender	N	Mean	Std. Deviation	Std. Error Mean
compute all the attitude question	Male	97	18.01	2.576	.262
	Female	161	18.57	2.328	.184
compute all the knowledge question	Male	97	22.25	4.186	.425
	Female	161	23.02	3.353	.264
compute all the belief question	Male	97	17.51	3.494	.355
	Female	161	18.89	3.614	.285
compute all the self motivation question	Male	97	13.86	3.285	.334
	Female	161	14.80	2.602	.205
how often do you purchase functional	Male	97	3.14	.804	.082
	Female	161	3.30	.742	.058

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | | | | | | | | | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
compute all the attitude question	Equal variances assumed	.617	.433	-1.801	256	.073	-.561	.312	-1.175	.052
	Equal variances not assumed			-1.756	186.641	.081	-.561	.319	-1.191	.069
compute all the knowledge question	Equal variances assumed	3.923	.049	-1.627	256	.105	-.771	.474	-1.705	.162
	Equal variances not assumed			-1.541	169.387	.125	-.771	.500	-1.759	.217
compute all the belief question	Equal variances assumed	1.027	.312	-3.028	256	.003	-1.389	.459	-2.293	-.486
	Equal variances not assumed			-3.054	207.795	.003	-1.389	.455	-2.286	-.492
compute all the self motivation question	Equal variances assumed	7.046	.008	-2.557	256	.011	-.946	.370	-1.674	-.217
	Equal variances not assumed			-2.415	167.920	.017	-.946	.392	-1.719	-.173
how often do you purchase functional foods per month	Equal variances assumed	.140	.708	-1.626	256	.105	-.160	.098	-.354	.034
	Equal variances not assumed			-1.594	189.906	.113	-.160	.100	-.358	.038

Multiple regressions
(Factors influencing consumers' attitude towards purchases of functional foods)

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	self motivation, Belief, Knowledge[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Attitude

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.662[a]	.438	.432	1.835

a. Predictors: (Constant), self motivation, Belief, Knowledge

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	668.031	3	222.677	66.117	.000[a]
	Residual	855.446	254	3.368		
	Total	1523.477	257			

a. Predictors: (Constant), self motivation, Belief, Knowledge

b. Dependent Variable: Attitude

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.386	.772		10.867	.000
	Knowledge	.381	.041	.578	9.249	.000
	Belief	.109	.040	.163	2.699	.007
	self motivation	-.047	.046	-.056	-1.028	.305

a. Dependent Variable: Attitude

Hypothesis

T-Test (hypothesis 1)

Group Statistics

	respondent's gender	N	Mean	Std. Deviation	Std. Error Mean
Attitude	Male	97	18.01	2.576	.262
	Female	161	18.57	2.328	.184

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Attitude	Equal variances assumed	.617	.433	-1.801	256	.073	-.561	.312	-1.175	.052
	Equal variances not assumed			-1.756	186.641	.081	-.561	.319	-1.191	.069

Correlations (Hypothesis 2, 3 and 4)

Correlations

		Attitude	Knowledge	Belief	self motivation
Attitude	Pearson Correlation	1	.649**	.490**	.296**
	Sig. (2-tailed)		.000	.000	.000
	N	258	258	258	258
Knowledge	Pearson Correlation	.649**	1	.608**	.490**
	Sig. (2-tailed)	.000		.000	.000
	N	258	258	258	258
Belief	Pearson Correlation	.490**	.608**	1	.425**
	Sig. (2-tailed)	.000	.000		.000
	N	258	258	258	258
self motivation	Pearson Correlation	.296**	.490**	.425**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	258	258	258	258

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations (Hypothesis 5)

Descriptive Statistics

	Mean	Std. Deviation	N
Attitude	18.05	2.616	300
purchasers	3.2442	.76808	258

Correlations

		Attitude	purchasers
Attitude	Pearson Correlation	1	.350**
	Sig. (2-tailed)		.000
	N	300	258
purchasers	Pearson Correlation	.350**	1
	Sig. (2-tailed)	.000	
	N	258	258

**. Correlation is significant at the 0.01 level (2-tailed).