

EFFECTS OF NUTRITIONAL HEALTH CONSCIOUSNESS ON CONSUMER'S GOAT MILK CONSUMPTION

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Abstract: Food is a basic physiological need for survival, while nutrition and health are synonymous the sense of well-being. In Malaysia, generally food availability and variety is abundance due to our multicultural nature. Nonetheless, it is essential for consumers to make conscious decision on food choices and consumption in order to contribute to good health. Goat milk is one among the healthy natural products although its functional and nutritional value is less disseminated across the consumers. A cross sectional study was conducted to analyze the relationship between consumer attitude, social influence and self-efficacy on their intention to consume goat milk with the mediation effect of nutritional value. The study followed the application of PLS SEM to analyze the data. The findings clearly show the association between consumer attitude, social influence and self-efficacy on consumer's goat milk consumption. The partial mediation effect of nutritional health consciousness also indicates that consumers to a certain extent consider the benefits and nutritional value of the goat milk in their readiness to consume goat milk. The study extends better insight on goat milk consumption with support of theory of planned behaviour and with due consideration to benefits and nutritional value of the goat milk.

Keywords: Consumer attitude, social influence, self-efficacy, nutrition, goat milk.

INTRODUCTION

The world's goat population was around 867 million in 2009, with over 60% of that found in Asia and more than 95% in developing countries (FAO, 2003, Talpur, Bhangar & Memon, 2009) and according to Food and Agriculture Organization of the United Nations (FAOSTAT, 2012), the worldwide dairy goat population reached 191 million in 2010. Total goat milk production in Asia as percentage of all milk is small and is about 3.6% (FAO, 2010). Milk is very important in human diets because it contains significant amount of saturated fat, proteins, calcium and as well as vitamin. Contextualizing the goat milk consumption in Malaysia; in general, the demand for dairy goat products and goat milk is growing steadily. It is sighted in several research that consumer behaviour is one among the major factor influencing goat milk consumption. Awareness about advantage of consumption of goat milk, the attitude of consumers towards goat milk, the social perception and consumer's self-efficacy on goat milk consumption factors need to be analyzed in order to get better insight of consumer's goat milk consumption. This particular study thus focuses on goat milk consumption among consumers with specific reference to Malaysian milk consumers in the central region of Malaysia which includes the Selangor, W.P Kuala Lumpur, W.P. Putrajaya region. The study aimed

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to assess peoples' attitudes towards consumption of goat's milk in Malaysia with the support of theory of planned behaviour and with the thrust given to nutritional value perception of consumers in the Malaysian context.

LITERATURE REVIEW

Nutritional Value of Goat Milk

Goat milk plays an important role in nutrition and socioeconomic wellbeing of developing and underdeveloped countries, where it provides basic nutrition and subsistence to the rural people, which are the majority of their populations (Park and Haenlein, 2007). Although goats produce approximately 2% of the world's total annual milk supply (FAO, 1995), their contribution to the nutritional and economic wellbeing of mankind is tremendous in many parts of the world, notably in the Mediterranean countries and in the Middle East (Park, 1994; Park and Haenlein, 2007). Goat milk is characterized by predominantly small milk fat globules widely referred to as homogenized goat milk, less curd yield, and weaker curd firmness which together aid digestion. The milk fat has significantly higher contents of short chain, medium chain and polyunsaturated fatty acids than cow milk and its cheeses. Goat milk exceeds cow milk in monounsaturated, polyunsaturated fatty acids and medium chain triglycerides all of which are well known to be beneficial for human health, especially for cardiovascular conditions (Haenlein, 2004).

Nutrition and Health Consciousness

Gould, 1990 viewed health consciousness as inner status of a person about his/her health. Gould conceptualized it as a psychological variable consisting of four dimensions namely health alertness, health self-consciousness, health involvement, and self-monitoring of one's health. Like Gould, present study also considers it as purely psychological state and considers illness-prevention or physical fitness behaviours as an outcome of health consciousness rather than one dimension of it. Gould, 1990 also mentioned that health consciousness is positively related to dietary pattern such as vitamin intake, calorie reduction. Health conscious people discusses health related issues seek health related information (Gould, 1990) and are found to take preventive actions such as exercise and consumption of nutritious food (Iversen and Kraft, 2006). Health consciousness and nutritional intentions are closely connected into.

Consumer Attitude Towards Goat Milk

Attitudes are an expression of inner feelings that reflect whether a person is favorably or unfavorably predisposed to some object. They are an outcome of psychological process, and hence are not observable, but must be inferred from what

people say are what they do. Nutrition is a major “determinant of chronic disease” and scientific evidence shows that changes in diet can have positive or negative effects on human’s health (WHO, 2003, p. 2). For this reason the nutritional factor of the products appears to have a significant impact on consumer’s purchase and consumption intention. For instance, Xu and Zhou (2010) have shown that health concerns influence the frequency of goat milk consumption. According to Jerop et al. (2013), consumers were willing to pay higher prices for goat’s milk. This implies that many consumers of goat’s milk did not mind the price of the milk, possibly because of the additional health benefits of goat’s milk. According to Park (2012), goat’s milk, in addition to providing basic nutrition and subsistence to goat keepers, had a significant value in human nutrition, especially for children.

Subjective Norm and Goat Milk Consumption

Subjective norms, also referred to as normative beliefs, have a significant effect on consumption intention and are related to the probability that key individuals and groups support or condemn a certain behavior (Ajzen, 1991). Thus, when a person is surrounded by family or peers to whom consuming goat milk is important, and if that person wishes to please them, there would be more pressure and the likelihood of consumption would be higher. For example, Xu and Zhou (2010) reported that family eating habits have a strong impact on college students’ dairy choices. Similar findings are reported by Nolan-Clark et al. (2011) and ESADA (2002), who found that dairy product consumption is significantly influenced by family buying habits and choices.

Perceived Behavioral Control and Goat Milk Consumption

Perceived behavioral control refers to one’s perception of the availability of skills, resources and opportunities that may either inhibit or facilitate the behavior. Perceived behavioural control is caused by control beliefs, or the belief that the required resources and opportunities are available to carry out the behaviour, and perceived facilitation, or the assessment of the importance of those resources to successfully complete the behaviour (Ajzen, 1991). Though the consumers have the positive perception towards goat milk, it is necessary that they should be taking some concrete effort and initiation to purchase and consume the product.

Problem Statement

Less information exists about the specific factors that drive attitude towards goat’s milk in Malaysia and its implications for a dairy milk products, ventures and market. It is envisaged in this context that in addition to the attitudinal factors the social influence and self-efficacy factors of the consumers to be studied with the support of consumer’s perception towards goat milk consumption. The current study thus

aimed to fill this gap by undertaking a study to assess peoples' attitudes towards consumption of goat's milk in Malaysia with the support of theory of planned behaviour and with the thrust given to nutritional value perception of consumers in the Malaysian context.

Research Questions

1. Do attitude, social influence and self-efficacy have any influence on Malaysian consumer's goat milk consumption?
2. Does nutritious health consciousness mediate the relationship between attitude, social influence and self-efficacy on Malaysian consumer's goat milk consumption?

Research Framework

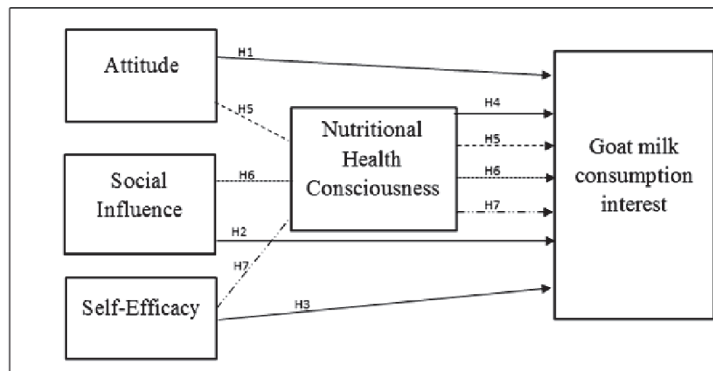


Figure 1: Research Framework

Research Hypothesis

1. There is direct and positive relationship between attitude and goat milk consumption interest among Malaysian consumers.
2. There is direct and positive relationship between social influence and goat milk consumption interest among Malaysian consumers.
3. There is direct and positive relationship between self-efficacy and goat milk consumption interest among Malaysian consumers.
4. There is direct and positive relationship between nutritional health consciousness and goat milk consumption interest among Malaysian consumers.
5. Nutritional health consciousness mediates the relationship between attitude and goat milk consumption interest among Malaysian consumers.

6. Nutritional health consciousness mediates the relationship between social influence and goat milk consumption interest among Malaysian consumers.
7. Nutritional health consciousness mediates the relationship between self-efficacy and goat milk consumption interest among Malaysian consumers.

METHODOLOGY

Study Location

This study is an exploratory cross sectional study using probabilistic cluster sampling followed by purposive sampling conducted in the Klang Valley of Malaysia which includes the Selangor, W.P Kuala Lumpur, W.P. Putrajaya region.

Sample Size

Questionnaire was piloted by 384 Malaysian adults who reside in the Klang Valley. The target population selected for this study includes the male and female adult consumers in the Klang Valley of Malaysia which includes the Selangor, W.P Kuala Lumpur, W.P. Putrajaya region.

Research Design

A quantitative, descriptive research design was chosen for this study in order to give a detailed description of the knowledge levels of consumers on consumption intention among Malaysian consumers. In order to achieve the generalized samples, 400 questionnaires were distributed at public locations including education centres, supermarkets, and among neighbourhood. Consumers who visit super markets and supermarkets were the major respondents in this research. After a short introduction and explaining the purpose of the study, respondents were then requested to answer the questionnaire along with the consent form before returning to the researcher. This study aimed to test the hypothesis, i.e., whether or not a relationship between the variables of attitude, social influence and self-efficacy on goat milk consumption among consumers in Malaysia, based on the data obtained, in order to get the meaning and implications of the problem to be solved such as improving the consumption of goat milk among Malaysian consumers. This causality study is designed through quantitative approach using SmartPLS 3.0

Questionnaire: The questionnaire consists of 5 constructs following the research framework.

Measurement 1: Attitude

Customer attitude was measured by using 3 items developed by Shih and Fang (2004). The participants were asked to indicate their perception on a Likert scale (1- 5) with response ranging from “strongly disagree” to “strongly agree”. This

scale was used by Pikkarainen et al. (2004) and had reported reliabilities of the items to be 0.89

Measurement 2: Social Influence

Social influence employs the consumer Susceptibility to Interpersonal Influence (SII) scale proposed by Bearden et al. (1989, 1990). The measure includes all four items of the original scale. Whereas the Susceptibility to Normative Influence (SNI) measure in this study drops one from the original measure because it explicitly refers to purchasing the latest 'fashion'. This item was potentially distracting for our respondents and irrelevant to the study. Respondents were asked to rate the ten statements based on a seven-point Likert-type scale ranging from 1 ('strongly disagree') to 7 ('strongly agree'). Slight modifications to the original scale were made in order to make it applicable to the current environment in Malaysia. The Cronbach alpha of items loaded was 0.79

Measurement 3: Self-Efficacy

The four items to measure self-efficacy were all based on an instrument originally developed by Taylor and Todd (1995). With the items in the instruments the respondents were asked to indicate their perceptions about their confidence and attitudes toward goat milk. Respondents were asked to rate the statements based on a seven-point Likert-type scale ranging from 1 ('strongly disagree') to 7 ('strongly agree'). Slight modifications to the original scale were made in order to make it applicable to the current environment in Malaysia. The Cronbach alpha of items loaded was 0.94

Measurement 4: Consumer Consumption Interest

The measurement scales for consumer consumption interest were adapted from Young et al. (2008). Some minor modifications were done, including the wording of the items to make them applicable for health products and goat milk, at marketplace context. These three items were measured along a five-point Likert scale, ranging from "Strongly disagree" (1) to "Strongly agree" (5). Thus the three items were averaged to form a "consumption interest" scale with a reliability coefficient of 0.77.

Measurement 5: Nutritional Health Consciousness

The 11 items closely related to nutrition is re-conceptualized as health consciousness focusing on either one's self-health awareness, personal responsibility, or health motivation. Most of the 11 final items turned out to be from previous studies (Item no 1, 2, 3, and 5 from Gould (1990); Item no 4, 7, and 8 from Kraft & Goodell, 1993; Item no 6 from Michaelidou and Hassan (2008); Item no 10 and 11 from Dutta (2007), other than the new item introduced in this study (Item 9). The results

of a pilot test supported the conceptualization of health consciousness, as consisting of three dimensions (e.g., self-health awareness, personal responsibility, and health motivation). These items were measured along a five-point Likert scale, ranging from “Strongly disagree” (1) to “Strongly agree” (5). Thus the eleven items were averaged to form a “nutritional health consciousness scale” with a reliability coefficient of .79.

Data Analysis

The study data was analyzed to meet all of the underlying assumptions of multivariate analysis, through SPSS such as, data normality, homoscedasticity uni-dimensionality and multicollinearity. In addition, values of means, minimum, maximum and standard deviations were computed under descriptive statistical techniques. Furthermore, sample description was narrated through cross tabulation. To draw inferences about study hypotheses, PLS-SEM technique was mainly employed for the data analysis. Moreover, the requirements of structural and measurement models were met through PLS-SEM by using SmartPLS 3.0.

RESULT

Descriptive Analysis of the Constructs

To get an initial summary of the data, a descriptive analysis was conducted to describe the general situation of attitude, social influence, and self-efficacy among the Malaysian consumer. As can be seen in Table 1 the mean, standard deviation, maximum and minimum of the constructs were reported. These results showed the perceived level of attitude of Malaysian consumers on goat milk consumption. As tabulated in Table 1 the minimum value of most of the constructs was 1.00 and the maximum value of most of the constructs was 7.00 which are the minimum and maximum levels in the Likert scale used in this study. In other words, this result indicates the trend of goat milk consumption interest like the attitude, social influence, self-efficacy and nutritional health consciousness among Malaysian consumers.

TABLE 1: DESCRIPTIVE STATISTIC OF THE CONSTRUCTS (N = 384)

<i>Construct</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Min</i>	<i>Max</i>
Attitude	3.91	0.56	1.00	5.00
Social influence	6.11	0.59	1.00	7.00
Self-efficacy	6.00	0.66	1.00	7.00
Nutritious health Consciousness	3.89	0.51	1.00	5.00
Consumer Consumptions Interest	3.92	0.57	1.00	5.00

Hypotheses Testing Procedures

Pearson correlation analysis was utilized to get an initial picture of the relationships between the dimensions of attitude, social influence and self-efficacy and the intention to consume goat milk among Malaysian consumers. To test hypotheses regarding the direct hypotheses of this study and the moderating effect of nutritional health consciousness on the relationships between the attitude, social influence and self-efficacy and goat milk consumption among Malaysian consumers, the SEM analysis was employed.

Correlation Analysis Result

This analysis was performed after the ensuring that all the basic assumptions such as the outliers, linearity, and normality were met. It is conducted with a view to determine the direction of the association among the variables used in this study. As it is, there are three independent variables in this study which is consumer attitude, social influence and consumer self-efficacy. Further, there is one mediation variable which is nutritional health consciousness and one dependent variable consumer consumptions interest. The correlation result shows that there is significant correlation among the variables viz., consumer attitude, social influence and consumer self-efficacy, with the dependent variable goat milk consumption at 0.01 level. The mediation relation is also well supported.

TABLE 2: CORRELATION ANALYSIS RESULT

	<i>CCI</i>	<i>AT</i>	<i>SI</i>	<i>SE</i>	<i>NHC</i>
CCI	1				
AT	.601**	1			
SI	.599**	.611**	1		
SE	.561**	.587**	.499**	1	
NHC	.566**	.561**	.501**	.487**	1

The result in Table 2 shows the significant and positive relation of consumer attitude (AT) with consumer consumptions interest (CCI) to goat milk ($r = 0.601$, $P < 0.01$), social influence (SI) with CCI to goat milk ($r = 0.599$, $P < 0.01$), and self-efficacy (SE) and CCI to goat milk ($r = 0.561$, $P < 0.01$). The table also showed a similar relationship between nutritional health consciousness (NHC) and CCI ($r = 0.566$, $P < 0.01$).

Structural Model

In this section, the result of the structural model and tests of hypotheses for this study is initiated. Following Hair et al.(2011; 2012), this section uses the standard bootstrapping process with a number of 5000 bootstrap samples of 384 cases to

assess the importance of the path coefficients. Using the PLS bootstrapping output, the moderation effects of nutritional health consciousness was computed. Figures 2 and Figures 3, illustrates the estimation for the direct and indirect structural model. To understand the relationship between the constructs, SEM-PLS structural model analysis was conducted. The contribution of each construct of the exogenous variable is represented by the standardized beta values within the PLS structural model (Chin, 1998).

TABLE 3: OVERALL ANALYSES

<i>Hypothetical Relationship</i>	<i>Path Coefficient</i>	<i>Absolute t statistic value</i>	<i>Value of R²</i>	<i>Value of Q²</i>
AT → CCI	0.562***	18.112	0.401	0.323
SI → CCI	0.501***	17.102	0.411	0.317
SE → CCI	0.599***	19.300	0.510	0.433
NHC → CCI	0.577***	21.001	0.522	0.467
AT → NHC → CCI	0.426***	22.211	0.431	0.400
SI → NHC → CCI	0.421***	20.401	0.399	0.301
SE → NHC → CCI	0.401***	23.001	0.403	0.321

Structural Model Direct Effect

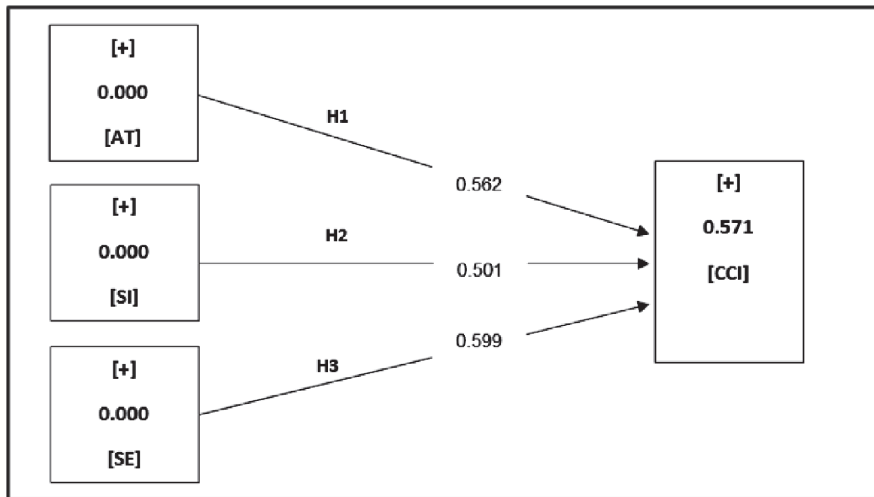


Figure 2: Structural Model Direct Effect

Figure 2 shows the results of the structural path based on the hypothesis (H1, H2, and H3) of the study which is one of the major analyses, showing the direct

effect of attitude, social influence and self-efficacy of the Malaysian consumers on consumptions interest of goat milk as a combined construct.

The direct relationship showed that the predictor has significant and positive impact on predicting variable ($p < 0.01$) shown in Figure 2. In addition, the overall validity of this structural model is evident as Q^2 values (0.323, 0.317 and 0.433 respectively) are well above zero, providing the support that the attitude; social influence and self-efficacy of the Malaysian consumers affect goat milk consumption interest. R^2 shows attitude, social influence and self-efficacy of the Malaysian consumers as a combined construct, explains the goat milk consumption interest construct as 40.1%, 41.1% and 51.0% (0.401, 0.411, 0.510) having stronger statistical power in parameter estimation (Hair et al., 2013).

To sum it up, the entire three hypotheses are empirically supported. In summary, the validity of structural models from 1-3 was verified, the Q^2 values for all of the models, were greater than zero, providing the evidence of predictive relevance with empirical support for the overall path models of the study. In addition, R^2 of every model delivered a figure showing sufficiently amplification abilities of the independent variables to account for variance in the dependent variable of the study. Moreover, most of the path coefficients were significant ($p < 0.01$).

Structural Model Indirect Effect

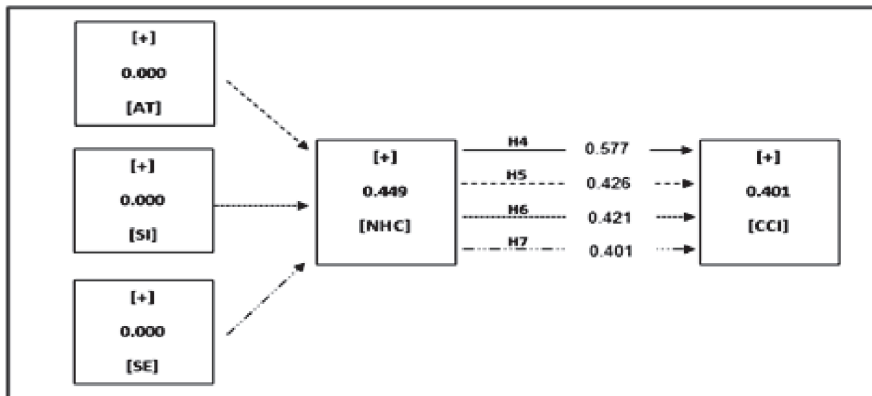


Figure 3: Structural Model Indirect Effect

After including the mediating construct of nutritional health consciousness between the attitude, social influence and self-efficacy and consumer consumptions interest of goat milk (Model 5, 6, 7), it was found that nutritional health consciousness have a positive and significant impact on Malaysian consumers' consumptions interest towards goat milk. At the same time, after introducing mediator, the relationship between attitude, social influence and self-efficacy and

consumer consumptions interest of goat milk factors was vividly reduced but still remained significant path coefficient of 0.426, 0.421, 0.401 ($p < 0.01$).

DISCUSSION

Research Question 1: *Do attitude, social influence and self-efficacy have any influence on Malaysian consumer's goat milk consumption?*

Consumer Attitude and Goat Milk Consumption

The current study result indicates that there is positive relationship between consumer attitude and goat milk consumption in Malaysia. Attitude towards the behaviour influences consumer's intention to consume the product. Attitude determines final decisions in the consumers' consumption behaviour. Consumer behaviour involves the psychological processes that consumers go through in recognizing needs, finding ways to solve these needs; collect and interprets information; make plans and implement these plans, making purchase decisions and post-purchase behaviour. The study thus proves the influence of attitudinal factors in relation to product attributes in its influence on goat milk consumption among Malaysian consumers.

Social Influence on Consumer and Goat Milk Consumption

Various studies have identified that a number of factors can influence consumers' consumption behaviour in relation to food (Davis et al., 1989; Thompson & Thompson, 1996; Shepherds, 2001). The experiential evidence from the research result confirms the significant positive and direct relationship between social influences on goat milk consumption among Malaysian consumers. Scientists have long admitted that consumer's behaviour could be influenced by the groups they are members of or reference groups that influence their attitudes, beliefs and values (Solomon et al., 2006). In terms of the TPB and in the context of functional foods such as goat milk, reference groups or peer communication are the subjective norms, or "the influence that people in the respondent's social environment have on the consumption of the functional foods" (Sukboonyasatit, 2009, p.69). Malaysia is a country which accommodates several races like Malays, Bumiputras, Chinese, Indian and others. Hence the cultural variation and social influence factors have high prominence, whether to consume the goat milk in the day to day life. The study thus proves cultural variation and social influence affectsthe consumption of goat milk among Malaysian consumers.

Self-efficacy on Consumer and Goat Milk Consumption

The experiential evidence from the research result confirms the significant positive and direct relationship between self-efficacy and goat milk consumption among Malaysian consumers. The Theory of Planned Behavior places the constructs of

self-efficacy belief or perceived behavioral control within a more general frame work of the relations among beliefs, attitude, intention and behavior (Ajzen, 1991). Self-efficacy is associated with beliefs and behaviors (Bandura, 1986). It is necessary that a consumer should develop a favorable attitude initially towards nutritious food consumption in order to orient them towards consumption behaviour. The stronger the belief they develop towards nutritious products, the stronger their consumption behavior towards goat milk will be. Individuals who perceive themselves as highly efficacious tend to initiate a sufficient effort that may produce successful outcomes, whereas those who perceive low self-efficacy are likely to cease their efforts prematurely and fail on the task. The consumers who are more efficacious are willing to go extra mile and purchase the goat milk, if they are convinced with the nutritious contents and long term benefit to their health. The study thus proves the influence of perceived behaviour control variable, self-efficacy in its influence on goat milk consumption among Malaysian consumers.

Research Question 2: *Does nutritious health consciousness mediate the relationship between attitude, social influence and self-efficacy on Malaysian consumer's goat milk consumption?*

Nutritional Health Consciousness and Intention to Consume Goat Milk

Milk has long been and will always be consumed as part of a healthy balanced diet as it contains an impressive array of nutrients. Scientific data are continuously being published, documenting both already available knowledge concerning nutrient content and also new information about health and prevention of disease. However, research over the last decades has focused on cow milk, hence remaining goat milk an appealing area of investigation (Michaelidou, 2008). Goat milk is a rich source of proteins, vitamins, minerals as well as many short and medium chain fatty acids. Goat milk's nutritional properties and lower allergenicity in comparison to cow milk, especially in non-sensitized children, has led to an increased interest in goat milk as a functional food, and it now forms a part of the current trend to healthy eating in developed countries (Yangilar, 2013).

The experiential evidence from the research result confirms the partial mediation effect of the relationship between attitude, social influence and self-efficacy on goat milk consumption intentions among Malaysian consumers. This indicates that Malaysian consumers are quite conscious about the nutritional value of the goat milk and they have shown their readiness to consume goat milk, with due consideration to health consciousness. All the variables which are closely knit with the theory of planned behaviour like attitude, social influence and self-efficacy is partially mediated by the nutritious health conscious variable in its effect on goat milk consumption. Awareness about the nutritious content of the goat milk thus supports the consumer's goat milk consumption.

CONCLUSION

The major objective of this research was to establish the relation between attitude, social influence and self-efficacy on goat milk consumption, giving prime concern to the nutritional health consciousness among the Malaysian consumers. This cross sectional study conducted in the Selangor region of Malaysia clearly indicates that the consumer's attitude having close proximity towards goat milk consumption, considering the therapeutic, beneficial and nutritional value associated with its consumption. Major thrust has been given to the mediation effect of the nutritional health consciousness variable in this research. The findings clearly indicates that health and nutrition are the major factors Malaysian consumers keenly looked into when they have to take a decision to consume the milk products. The study leads to implication at practical and policy level that the government as well as companies could consider and take appropriate steps in disseminating therapeutic, beneficial and nutritional values associated with goat milk consumptions.

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