

**FACTORS INFLUENCING INTENTION TO CONSUME
HERBAL SUPPLEMENT**

By

ABBAS SYED MOHAMED

Research report in partial fulfillment of the requirements for the
degree of Masters of Business Administration

MARCH 2004

DEDICATION

ALHAMDULILLAH

Praised be to ALLAH the Almighty for endowing me with
perseverance to endure all the challenges.

An appreciation to
my humble and caring wife, Aziza
for her love and kind support.

A dedication to
my son, Ashiq and my daughter Ashira
with the hope to inspire them to achieve excellence

INSYAALLAH

ACKNOWLEDGEMENT

First and foremost, I would like to place on record my most sincere appreciation and gratitude to my supervisor, Dr. Mohd. Nasser Mohd Noor, for his invaluable guidance and advice in supervising me throughout this entire research project. Many thanks to Professor Mohamed Sulaiman, Associate Professor Zainal Ariffin Ahmad and Associate Professor Yuserrie Zainuddin for their assistance and opinions. My appreciation also goes to Cikgu Buruhanutheen for his inspiration and support. I also wish to thank all my friends, especially Cikgu Fauziah Abdul Rashid, En. Shaharuddin Kassim, Mr. Rajen, Mr. Ganesh, and Mr. Karuna, whose friendship and encouragement have been helpful in my completion of this project. Finally, special and heartfelt thanks to my beloved wife, Aziza, son, Ashiq, and daughter, Ashira, for their love, support and encouragement throughout my years of study.

Abbas Syed Mohamed
2004

TABLE OF CONTENTS

	Page
DEDICATION	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
ABSTRAK	ix
ABSTRACT	x
Chapter 1 INTRODUCTION	1
1.0 Introduction to Consumer Behavior	1
1.1 Overview of Herbal Product	2
1.2 Definition of Herbs and Herbal Product	3
1.3 History of Herbs	3
1.4 Herbal Industry in Malaysia	5
1.5 Problem Statement	8
1.6 Research Objectives	9
1.7 Research Questions	9
1.8 Significance of the Study	10
1.9 Organization of the Thesis	11
1.10 Summary	11
Chapter 2 LITERATURE REVIEW	12
2.0 Introduction	12

2.1	The Concept of Market Value and Attitude	12
2.2	Consumer Behavior Models	14
2.2.1	<i>Bettman's Information-Processing Model</i>	15
2.2.2	<i>Engel-Kollat Blackwell Model</i>	19
2.2.3	<i>Howard-Sheth Model</i>	19
2.2.4	<i>Nicosia Model</i>	20
2.2.5	<i>Sheth Family Decision Model</i>	23
2.2.6	<i>Sheth-Newman-Gross Model</i>	23
2.2.7	<i>Theory of Reasoned Action (TRA)</i>	23
2.2.8	<i>Theory of Planned Behavior (TPB)</i>	26
2.3	Research Framework	34
2.4	Hypothesis Development	35
2.3	Summary	37
Chapter 3	METHODOLOGY	39
3.0	Introduction	39
3.1	Research Design	39
3.1.1	<i>Type of Study</i>	39
3.1.2	<i>Nature and Setting of Study</i>	39
3.1.3	<i>Unit of Analysis</i>	39
3.1.4	<i>Time Horizon</i>	40
3.1.5	<i>Population and Sample</i>	40
3.2	Structure of Questionnaire	40
3.3	Data Collection Method	42
3.4	Operationalization of Variables	43
3.4.1	<i>Dependent Variable</i>	44

3.4.2 <i>Independent Variables</i>	44
3.5 Data Analysis Method	49
3.6 Summary	50
Chapter 4 FINDINGS	51
4.0 Introduction	51
4.1 Descriptive Profile of Respondents	51
4.2 Reliability Analysis	52
4.3 Correlation Analysis	54
4.4 Multiple Regression Analysis	57
4.5 Explanatory Role of Independent Variables	59
4.6 Discriminant Analysis	61
4.7 Summary of Findings	67
Chapter 5 DISCUSSION AND CONCLUSION	70
5.0 Introduction	70
5.1 Discussion on Major Findings	70
5.2 Implication of the Study	72
5.3 Limitation of the Study	75
5.4 Suggestion for Future Research	76
5.5 Conclusion	77
REFERENCES	78
APPENDICES	84

LIST OF TABLES

	Page
Table 4.1: Demographic Profiles of Respondents	53
Table 4.2: Chronbach's Alpha Values for Variables	54
Table 4.3: Correlation between belief-based measure and direct-measure of the independent variables	55
Table 4.4: Correlation between independent and dependent variables	57
Table 4.5: Summary results of multiple regression analysis	59
Table 4.6: Correlation coefficient between attitude and outcome belief	60
Table 4.7: Correlation coefficient between subjective norm and belief-based measure of referent belief	60
Table 4.8: Correlation coefficient between PBC and belief-based measure of control belief	61
Table 4.9: Eigenvalues for Canonical Discriminant Functions (intention – behavior)	62
Table 4.10: Wilk's Lambda for Canonical Discriminant Functions (intention – behavior)	62
Table 4.11: Eigenvalues for Canonical Discriminant Functions (PBC – behavior)	63
Table 4.12: Wilk's Lambda for Canonical Discriminant Functions (PBC – behavior)	63
Table 4.13: Discriminant analysis case processing summary	64
Table 4.14: Classification Matrices for Analysis and Holdout Samples	64
Table 4.15: Comparison of Goodness of Measure	67
Table 4.16: Results of hypothesis testing	69

LIST OF FIGURES

	Page
Figure 1.1: List of MIGHT Interest Group Members	85
Figure 1.2: Summary of WHO-GMP Guidelines on Herbal Products	86
Figure 2.1: Bettman's Information Processing Model	16
Figure 2.2: Engel-Kollat Blackwell Model	17
Figure 2.3: Howard-Sheth Model	18
Figure 2.4: Nicosia Model	21
Figure 2.5: Sheth Family Decision Model	22
Figure 2.6: Sheth-Newman-Gross Model	24
Figure 2.7: Theory of Reasoned Action	25
Figure 2.8: Theory of Planned Behavior	27
Figure 2.9: Theoretical Framework (TPB)	36
Figure 4.1: The relationship between belief-based measure and direct-measure of the independent variables	56
Figure 4.2: Relationship between independent and dependent variables	58
Figure 4.3: The relationship between attitude, subjective norm, PBC, intention, and choice preferences towards herbal supplement	68

ABSTRAK

Perkembangan industri herba di Malaysia baru-baru ini telah meningkatkan persaingan yang sengit di kalangan pemasar barangan tersebut. Faktor utama bagi mencapai kejayaan di dalam industri yang mencabar ini ialah dengan menjalankan perniagaan yang berorientasikan pelanggan dan berasaskan penggerak-pasaran. Tujuan kajian ialah untuk memberikan gambaran umum tentang kecenderungan niat pengguna di dalam proses membuat pilihan. Selain dari itu, ia juga bertujuan membantu para pemasar di dalam mengenalpasti faktor-faktor yang dapat mempengaruhi tabiat pemilihan para pengguna dalam proses pembelian pemakanan herba tambahan. Kajian ini dijalankan berasaskan model Teori gelagat terancang (Theory of Planned Behavior), satu model susulan daripada model Teori tindakan beralasan (Theory of Reasoned Action) bagi mengenalpasti faktor yang mempengaruhi kecenderungan niat terhadap pemakanan herba tambahan. Model Teori gelagat terancang dapat meramalkan kecenderungan niat untuk melaksanakan sesuatu tindakan pemilihan melalui sikap terhadap perlakuan, norma subjektif, serta perlakuan pengawalan tindakan. Analisis Regresi Pelbagai telah membuktikan bahawa kecenderungan niat adalah sebenarnya dipengaruhi oleh ketiga-tiga pembolehubah yang dikaji. Intisari kepercayaan berkenaan dengan sikap terhadap perlakuan, norma subjektif, perlakuan pengawalan tindakan telah dikenalpasti. Seperti kajian-kajian sebelum ini, sikap terhadap perlakuan dikenalpasti sebagai penentu utama terhadap kecenderungan niat. Hasil kajian ini sesungguhnya membuktikan bahawa kecenderungan niat adalah sebenarnya dipengaruhi oleh sikap terhadap perlakuan, norma subjektif, perlakuan pengawalan.

ABSTRACT

The recent growth of herbal industry in Malaysia intensifies the challenges among market players. The main ingredient to be successful in the competitive industry is to be customer-oriented and market-driven. This research aims to contribute to the general understanding of consumer behavioral intention towards choice preferences, and to assist marketers in determining factors that influence consumers' intention towards herbal supplement. The study was conducted using Theory of Planned Behavior, an extension of Theory of Reasoned Action, to investigate the influential factors towards intention to consume herbal supplement. The TPB model predicts intention to perform a behavior from attitude, subjective norm, and perceived behavioral control. Multiple regression analysis proves that intention is indeed influenced by the three variables. Cores of salient beliefs related to attitude, subjective norm, and perceived behavioral control were identified. In common with many other studies, attitude components were found to be the most important predictor of behavioral intention. The finding of this study revealed that consumers' behavioral intention was indeed influenced by attitude towards behavior, subjective norm, and perceived behavioral control.

Chapter 1

INTRODUCTION

1.0 Introduction to Consumer Behavior

Understanding of market choice behavior is helpful in affecting consumer behavior in the market place (Sheth, Newman & Gross, 1991). Consumer behavior is a dynamic field and understanding consumer behavior and customer is never simple (Runyon, 1977). Knowledge in consumer behavior is relevant for marketers who intend to capture consumer markets and ensure long term success in business. Many studies have attempted to identify all the significant variables that shape consumer action and interrelationships among these factors.

Consumer behavior is a process of which purchase is only one stage. Consumers face various stages before they make any purchase decision. They identify their needs and wants; identify the most satisfying products and service by using product information, make comparison with alternatives before a purchase decision is made (Engel & Blackwell, 1982).

In view of the importance of understanding consumer behavior, many studies have been conducted on consumer behavior in order to recognize the underlying internal and external influences on consumer purchase decision.

As consumer behavior is influenced by various factors, research into these factors can provide clues on how to effectively reach and serve consumers. In order to become consumer-oriented, producing and delivering goods and services according to the customers wants is central to the companies marketing strategies. Individuals and groups of people acts differently. Each has his or her own preferences as well as likes and dislikes. The effect of each influential factor on

these people may differ. Some may react positively to personal factors and some may be influenced by social factors.

The understanding of the significant factors that influence consumers in their decision making process is essential for marketers. By understanding the purchase behavior of potential consumers, marketers will be able to develop effective marketing strategies to capture the target market.

1.1 Overview of Herbal Product

Since the dawn of recorded history, plants have been the primary source of medicine for people of every culture throughout the world. Medicinal plants or herbs have been mentioned in the Bible, the Quran and in historical literature. Plants that are used as medicines have been referred to as “herbs” for over 4000 years by European and the Mediterranean cultures, hence the word “herb”, being a derivation of “herbe” and the Latin word, “herba”. Herb refers to any part of any plant used for flavoring or medicine having nutritional and / or medicinal value (George, 2002).

Although herb was used for medication purposes for centuries, over the years more and more usage for herb-based products has been discovered through extensive research and development. This study focuses on consumer choice preferences towards herbal product, particularly herbal supplement, which covers all range of processed and packaged herb-based supplements.

According to the president of Malaysian Dietary Supplements Association, Dr. Jagdev Singh, “Even the prestigious *New England Journal of Medicine*, in a

published article dated April 9, 1998, supports the use of health supplements (Anonymous, 2004).

1.2 Definition of Herbs and Herb-based Product

Using the strictest definitions, a herb is a plant with a soft stem that dies down to the ground after flowering. However, the term "herb" is usually applied much more liberally to mean any plant of which part or all has been used to flavor food, supplement nutrition or treat medical illnesses. World Health Organization have defined herb as crude plant material such as leaves, flowers, fruit, seed, stems, wood, bark, roots, rhizomes or other plant parts, which may be entire, fragmented or powdered (George, 2002).

Finished herbal product is referred to as herbal preparations made from one or more herbs. If more than one herb is used, the term mixture herbal product can also be used. Finished herbal products and mixture herbal products may contain excipients in addition to the active ingredients. However, finished products or mixture products to which chemically defined active substances have been added, including synthetic compounds and / or isolated constituents from herbal materials, are not considered to be herbal (Edwin, 2002).

1.3 History of Herbs

The first written record of herbs dates back more than 4,000 years to the Sumerians who described medicinal uses of such plants as laurel, caraway and thyme. The earliest book on herbal remedies is a Chinese listing of 365 medicinal plants and their applications, and dates back to 2700 BC. In 1000 BC, the Egyptians used garlic, opium, castor oil, mint and other herbs as medicine. The Romans and Greeks also valued plants for their medicinal benefits and records of their medical

practices provided inspiration for later Western medical learning. The Malays and Javanese have been consuming jamu and tonic for post-natal recovery, cleansing of blood, increase virility and vitality, since time immemorial (Kelly, 2003).

During the Middle Ages, herbs continued to be important in medicine, and they reached new heights in the 15th, 16th, and 17th centuries when several books on herbs, commonly called herbals, were published. For the first time some were written in English and in languages other than Latin or Greek. Since then, however, the use of herbs as therapeutic products has slowly diminished. The introduction in the 17th century of active chemical drugs and the rapid development of sciences such as chemistry in the 18th and 19th centuries led to the dominance of synthetic chemical in the 20th century. By the 1960's, consumers were again beginning to consider herb based products to complement modern chemical based products. The belief that botanical remedies were "naturally" superior to man-made drugs helped to promote their use in the general public (Kelly, 2003).

Today, in many developing and low-income countries, herbs and spices take the place of expensive imported medicines. In more affluent society, people are consuming herbs because of the perception that they are more natural and friendly to our body metabolism. It is commonly believed that health can be improved and maintained using natural resources. In 1985, the World Health Organization estimated that 80% of the world's population relies primarily on herbs for it's healthcare needs. Recently, the escalating interest in novel flavors has increased the demand for herbs and spices. In the United States alone, demands

have been rising sharply since the 1980s with over 800 million pounds consumed annually (Ruslina Yusoff, 1998).

1.4 Herbal industry in Malaysia

Malaysia is among the countries in Southeast Asia which has experienced remarkable economic growth and industrialization in the past decade. Malaysia is blessed with an abundance of natural resources and its natural resource industry remains an important part of the country's economic and political agenda.

It is difficult to ignore the fact that 60% of Malaysia is covered with natural forest. The Malaysian government recognized the economic potential of the forest product industry early in the decade and proceeded to play a key role in further developing and promoting this particular sector of its economy through a concessions system and the encouragement of downstream industries. (Anonymous, 2001).

In Malaysia, the rich heritage of multi-ethnic, multi-cultural and multi-religious, has a unique position to serve as a confluence of three Asian cultures giving to three herbal traditions namely Malay, Chinese, and Indian. International Trade and Industry Ministry parliamentary secretary, Dato Fu Ah Kiow said that Malaysia had the world's oldest rainforests and one of the world's main center for trade in herbs. It is currently the fourth most bio-diversified nation in Asia. Malaysian tropical forest had an estimated 15,000 known plant species and an estimated 3,700 species were known to be useful. (Sim Bak Heng, 2001). According to Soepadmo, (1999), Approximately 1,200 species or 8 percent of the plants in Malaysia have medicinal value and have been consumed for generations. Although the country has a huge reservoir of genetic diversity, it is still a net

importer of herbs," said the Executive Director of IDS, Dr. Mohd Yaakub Haji Johari (Parmanan, 2003).

In the year 2000, Malaysia exported RM302.63 million worth of herbal products and imports amounted to RM1, 315.25 million. The top main export destinations were Singapore (RM66.94 Million), Japan (RM31.12 million), Hong Kong (RM26.44 million), Brunei (RM25.47 million) and Vietnam (RM 14.18 million) (Sim Bak Heng, 2001).

Growing at a rate of 15-20 percent annually, the Malaysian herbal industry is expanding rapidly this year with a market value estimated at RM4.55 billion, said chief operating officer of Malaysian Herbal Corporation (MHC) Dr Syed Kamaruddin Wazir. Under the Eighth Malaysian Plan, a total of RM1.6 billion has been allocated for the government's bio-tech research and development (R&D) program and it was timely for Malaysia to generate interest and build branding on local natural products. "The government has anticipated the industry will provide a competitive advantage to our country towards the attainment of developed country by the year 2020 based on our rich asset (natural resources)," said president and chief executive of Malaysian Industry-Government Group for High Technology (MIGHT), Datuk Dr Ahmed Tasir Lope Pihie at the 1st Asia Pacific Natural Products Expo 2003 (NATPRO 2003) (Anonymous, 2003).

In order to encourage the development of plant-based industries, the government has drafted a strategic action plan with the objective of enhancing the growth of the Malaysian herbal industry. The National Biodiversity Policy, launched in 1998, emphasizes the organizing of biological sources and the replenishing of forest sources in the country. In the 3rd National Agricultural Policy, medicinal plants were chosen as one of the main commodities of the

country with emphasis to make Malaysia as a centre for herbal product development and raw materials supply for industrial use. This is in line with the government's initiative to create an effective mechanism of transformation in the field of forestry, whereby the development of non-timber resources will be given greater emphasis besides the traditional development of timber-based products. The government offers its support through the development of the Malaysian Industry-Government Group for High Technology (MIGHT) that will draft strategic plans to make Malaysia as one of the biggest global producers of herbal raw materials and products by the year 2010 (Rama, 2000).

MIGHT Interest Group (MIG) in Herbal Product, was established in 1998 with the aim of integrating key players in herbal industry and draft ways to position Malaysia as an International player in herbal industry (refer to Figure 1.1 in the Appendix) Syed Kamaruddin (1999), cited from Chang, Vimala, Zainon, and Khozirah, (2000).

The manufacture of herbal product involves many players working in harmony to achieve objectives that demand accountability and professionalism in many strategic and technological disciplines. Demand for safe, quality and efficacious herbal products require total commitment from herbal industrial players to fulfill various roles in the handling and production of herbal products (Chang et al., 2000).

It is essential that the local manufacturer adopt modern concepts and technology in processing and developing their herbal products, in order to meet the international herbal products standards and compete successfully in the international market (Tierra, 1999; Cabrara, 1998).

According to Zahari Ismail (1999), cited from Chang et al., (2000), World Health Organization (WHO) introduced and recommended the Good Manufacturing Practices (GMP) in order to satisfy the needs for standard herbal products, which is accepted globally. (refer figure 1.2 in Appendix)

According to chief operating officer of Malaysian Herbal Corporation, as at September 2001, there were about 149 herbal companies which had qualified to be placed under the GMP system and that more than 2,000 companies are currently operating in the country (Sim Bak Heng, 2001).

WHO's GMP guidelines for the manufacture of herbal products are means to boost the quality of local herbal products. Malaysia is implementing WHO guidelines in stages. The National Pharmaceutical Control Bureau in 1977 published the general guidelines for GMP on traditional medicines (Dr Abdul Razak,(1999) cited from Chang et al., 2000). The above are some positive steps taken to boost the herbal industry development in Malaysia.

1.5 Problem Statement

Consumer decision making is becoming more and more complex. The decision making process has been more complicated by the increasing number and variety of goods, stores, shopping malls, and the electronic purchasing capabilities have broadened the sphere for consumer choice.

It is becoming important to study decision making styles, particularly consumer choice behavior, as the consumer were behaving so unpredictably. Thus, this study investigates factors that influence behavioral intention towards the choice preferences of herbal supplement among Malaysian consumers. As such,

this study is particularly important for marketers who intend to identify segments of consumers based on their behavioral intention towards herbal supplement.

1.6 Research Objectives

The main objective of this study was to contribute to the general understanding of consumers' behavioral intention towards choice preferences of herbal supplement, and to assist practitioners and policy makers in determining factors that motivates consumer intention towards herbal supplement. This research should work towards predicting consumer choice behavior, particularly focusing on what factors that influence behavioral intention towards the choice preferences of herbal supplement. As such this study was carried out to achieve the following objectives:

- 1) To determine factors influencing consumers' behavioral intention towards herbal supplement.
- 2) To assess the effect of attitude, subjective norm, and perceived behavioral control on consumers' behavioral intention towards herbal supplement.
- 3) To determine the relative importance of those significant determinants in influencing consumers' behavioral intention towards herbal supplement.

1.7 Research Questions

This study attempts to explore consumers' behavioral intention related to herbal supplement. This research will attempt to address the following questions:

- 1) What are the factors that significantly influence consumers' behavioral intention towards the consumption of herbal supplement?

- 2) What is the effect of consumers' attitude, subjective norm, and perceived behavioral control on the intention towards the preference of herbal supplement?
- 3) What is the relative importance of those significant determinants influencing consumers' behavioral intention towards herbal supplement?

1.8 Significance of the Study

Today's global business has changed the role of marketing strategy of each organization. Marketing strategy has become one of the vital role, which could assist a company to achieve its mission and objectives effectively. With the emergence of the need of marketing activities, the need for learning consumer decision making process has also increased.

Most modern marketers agree that the knowledge of consumer behavior is the fundamental requirement in achieving its primary goal to satisfy consumers' needs and wants at a profit. To meet this need, this study was conducted to identify dominant determinants on consumer behavioral intention towards the consumption of herbal supplement. To be successful, product developers need to have a clear understanding on the key factors influencing consumer-buying decision.

This study also attempts to provide a better understanding of market choice behavior, giving directions for future research, offering recommendations to the core of how herbal producer should define and view their business and at the same time assist marketing managers in making policy decisions.

1.9 Organization of the Thesis

This research is organized in five chapters. This introductory chapter discusses the basis of this study. Chapter two (2) presents the introduction to various consumer behavior models and reviews the literature from previous researches on similar subjects. Chapter three (3) discusses the research methodology, theoretical framework, hypothesis development, questionnaire design and the sampling process. Chapter four (4) reviews the results and statistical findings. The marketing implication and limitation of the study are concluded in Chapter five (5) with some suggestions on the direction of future research.

1.10 Summary

Herbal industry in Malaysia is growing at a remarkable rate. The understanding of consumer behavioral intention towards herbal supplement enables business practitioners to gain competitive advantage in today's challenging business environment. This study focuses on the understanding of the factors that influence consumer behavioral intention towards herbal supplement. Ajzen's (1991) Theory of Planned Behavior was used to determine the underlying factors that influence consumers' behavioral intention towards herbal supplement as it offers a clearly defined model that allows the investigation of the influences on consumers' intention to purchase and consume herbal supplement. Furthermore, according to East (1997), the TPB model has been applied to a wide variety of topics and has provided excellent estimates.

Chapter 2

LITERATURE REVIEW

2.0 Introduction

This chapter presents the conceptual foundation of various consumer behavior models with special emphasis on Theory of Planned Behavior, which has been used as the research framework for this study. In the process of reviewing the literature, this chapter will emphasize on the concept of attitude, social subjective norm, and perceived behavioral control. This chapter also highlights the theoretical framework of this study and the development of hypothesis based on the framework.

2.1 The Concept of Market Value and Attitude

According to Sheth (1999), a market value is a potential of a product or service to satisfy customers' need and wants. Value is created only if the product or service has the capability to satisfy a customer's needs and wants. Rokeach (1973) proposed that values are standard or criterion for guiding actions and for maintaining attitudes towards relevant objects or situation.

The definition of attitude given by Engel, Blackwell, and Miniard (1995), (as cited in De Mooj, 1998) is an overall evaluation that enables one to respond in a consistently favorable or unfavorable manner with respect to a given object or alternative. Meanwhile, Kotler, Ang, Leong, and Tan (1999) expanded the definition to include action tendencies towards some object or idea. Peoples' attitudes are guided by their values. Values are considered standards according to which people form their attitudes.

Most of the past research in marketing has examined value in the context of expectancy-value analysis (Fishbein, 1963; Rosenberg, 1956). Expectancy-value models focus on assessing product attributes in relation to brand preference. Personal values, on the other hand, have been explored in marketing research as a basis for both market segmentation and product positioning. There is a widespread belief among marketers and advertising practitioners that understanding the dominant values of the target audience and the link between a product and a consumer's value system is essential to positioning (Reynolds, 1985).

Based on an amalgam of conceptual frameworks drawn from economics, psychology, and sociology, Ajzen and Fishbein (1980) postulated that the best predictor of behavior is the persons' intention to perform a behavior. They also argued that all other factors, such as personality, past experience, and demographic variables, are mediated through behavioral beliefs and evaluations of outcome. Therefore, attitude, and subjective norm are sufficient predictors of a persons' intention to perform a behavior. Although there is empirical support for this claim, as pointed out by East (1997), this principal of sufficiency is difficult to maintain, and a number of additions to the basic model have been proposed. Inclusion of perceived behavioral control into the model as proposed by Ajzen (1985) and supported in subsequent applications (Ajzen, 1988; 1991, Ajzen & Madden, 1986, Madden, Ellen, & Ajzen, 1992) also received widespread empirical support, having been successfully applied to a diverse range of volitional behaviors (Keith and Paris, 1999). The theory is specifically concerned with behaviors where individuals consider their implications of their actions before deciding whether or not to act.

2.2 Consumer Behavior Models

Consumer behavior is defined as the acts of individuals directly involved in obtaining and using goods and services, including the decision process that precede and determine those acts (Engel, Kollat, & Blackwell, 1973). Over the past years, a variety of explanatory theories of consumer behavior have been put forward. Some theories derive from social sciences: psychology, sociology, or economics. Others concentrates more on the effects of marketing variables, and stress the effects of external stimuli, such as advertising, product differentiation, packaging, promotion, retail availability, point of sale display, and direct selling (Ehrenberg, & Goodhart, 1979). The major theories such as Nicosia (1966), Howard and Sheth (1969) and Engel (1995), takes into account both personal and environmental variables.

Although such theories provide an understanding of alternative brands or products are compared, they do not explain how such comparisons are translated into buying decisions. To account for this process and to develop a comprehensive theory of consumer behavior, many researchers turned to social psychological research in attitude formation (Ajzen & Fishbein, 1980).

A class of theories referred to as expectancy-value models such as Rosenberg (1956) and Fishbein (1963), appeared to be of particular relevance because they provided a theoretical link between evaluative criteria and the concept of attitude. In addition, these models formalized the widely held view that consumers' anticipated satisfaction with a product is determined by their beliefs that the product fulfils certain functions and that it satisfies some of their needs. Over the past 40 years, expectancy-value models have developed from the original Fishbein (1963) consumer expectancy-value behavior model to the Theory of

Reasoned Action (TRA) (Ajzen & Fishbein, 1980), to the Theory of Planned Behavior (TPB) (Ajzen 1985; 1991) (Stavros , Michael , Robert, & Markos, 1999).

The TPB forms the theoretical framework of this study because it offers a clearly defined model that allows the investigation of the influence of attitudes, social determinants, and control beliefs have on consumers' intention to purchase and consume herbal supplement. Furthermore, a review by East (1997) has indicated that in recent years, the TPB has been applied to a wide variety of topics such as physical activities, quitting cigarette smoking, blood donation, complaining, internet usage and many more, and the model has provided excellent estimates.

The following are some of the most familiar models in consumer behavior. These models propose possible influential factors contributing to consumer choice behavior.

2.2.1 Bettman's Information-Processing Model (1979)

The Bettman's information-processing model (1979) (Figure 2.1, Appendix) proposed that consumer possesses a limited capacity for information processing. When there is a need for choice decision, they tend to employ simple decision strategies rather than going through complex alternatives evaluation. A choice is arrived much easier and faster without overly burdensome task of assessing the alternative information on hand. The limitation of this model is that it assumes that consumers in general employ simple decision strategies in making any purchase decision. Moreover, it does not consider any external forces that influence consumer decision making process.

2.2.2 Engel-Kollat Blackwell Model (1986)

The Engel-Kollat Blackwell model (1986) (Figure 2.2, Appendix) focuses on the psychological interaction of various steps in the decision making process, in five basic stages: problem recognition, information search, source for internal and external knowledge for alternative evaluation, purchase decision and resulting satisfactory or dissonance outcome. The stages and attention involves in a particular decision process depends on the extensiveness of the problem. The information process gives a consumer necessary guideline for decision making. The model also recognizes various variables that have direct influence to the decision process which includes: individual characteristic (motives, values, lifestyle, and personality), social influences (culture, reference group, and family) and situational influences. This model basically focuses on the various stages of the decision making process and also take into consideration other forces such as individual characteristic, social influences, and situational influences.

2.2.3 Howard-Sheth Model (1969)

The Howard-Sheth model (1969) (Figure 2.3, Appendix) develops a comprehensive theory of consumer decision-making. Three levels of decision-making stages were proposed: extensive problem solving, limited problem solving, and routinized response behavior.

“Extensive problem solving”, takes place when the consumer’s knowledge and beliefs about the brands are limited and therefore, consumer actively seeks information concerning a number or alternative brands.

“Limited problem solving”, takes place when the consumer’s knowledge and beliefs about the brands are only partially established and therefore, some comparative brand information is sought.

“Routinized response behavior”, occurs when the consumer’s knowledge and beliefs about the brand and its alternatives are well established, and the consumer is predisposed to the purchase of one particular brand.

The Howard-Sheth model can be further simplified into four major sets of variables; inputs, perceptual and learning constructs, outputs, and exogenous variables. The model also considers some of the influential external environmental factors, consumer personality traits, time pressure, and consumers’ financial status. The Howard-Sheth model emphasizes on the consumer decision making process, although it takes into consideration some of the external factors.

2.2.4 Nicosia Model (1966)

The Nicosia model focuses on the influential relationship between the producing firm and its potential consumers. Through an interactive design, the firm tries to influence the consumer through its marketing or advertising messages. In return, the consumer reacts to the firm’s messages by their purchasing action. The Nicosia model (1966) (Figure 2.4, Appendix) can be divided into four major fields. Field one: formation of consumer’s attitude as a result of the firm’s message. Field two: consumers’ search for relevant information to generate motivation to purchase the firms’ product. Field three: actual purchase taken place as a result of the motivation generation in field two. Field four: feedback from the purchase experience to both the firms, and the consumer (experience of satisfaction or dissatisfaction). The main limitation of this model is that there is an inadequate

understanding of the influences and the interrelationship among consumer attributes.

2.2.5 Sheth Family Decision Model (1974)

Sheth Family Decision Model (1974) (Figure 2.5, Appendix) emphasizes on the family and its members' social value influences on the consumer decision-making process. The model proposes that the decision-making may be either an individual or a joint decision influenced by the interaction between the family members. According to the model, specific purchase decision is influenced by family member's psychological system, social class, lifestyle, role orientation, family life-cycle stage, perceived risks, product importance, and time pressure. The limitation of this model is that it merely emphasizes on measures social influences towards consumers purchase decision.

2.2.6 The Sheth-Newman-Gross Model (1991)

This model is based on a theory that focuses on consumption values that explain consumer buying behavior towards a specific product. Sheth-Newman-Gross Model (1991) (Figure 2.6, Appendix) identified five consumption values influencing consumer choice behavior. They are functional value, social value, emotional value, epistemic value, and conditional value. Thus, this model only focuses on the consumption values to explain consumer buying behavior.

2.2.7 Theory of Reasoned Action (1980)

Theory of reasoned action (TRA) suggests that an individual's behavior is determined by individual's behavioral intention to carry out the specific behavior,

providing the most accurate prediction of behavior. TRA (Figure 2.7, Appendix) proposes that the best predictor of consumer's choice decision was their intention towards the behavior. Behavioral intention is a function of attitudes towards the behavior and subjective norm.

TRA is an extended model from one of the multi-attribute model called the Fishbein Model. Almost all multi-attribute models suggest that the overall attitude is based on the component belief about an object weighted by evaluation of these beliefs. The extension of the TRA model accounts for the pressures of subjective norms in predicting behavioral intention. TRA failed to acknowledge the fact that an individual behavior may be directed by general constraints (Madden, Ellen & Ajzen, 1992). Thus, this limitation is addressed by Theory of planned behavior (Ajzen, 1991).

2.2.8 Theory of Planned Behavior (1991)

Theory of planned behavior (TPB) (Figure 2.8, Appendix) is an extension of TRA model. It emphasizes on the reason-based antecedents of behavior, which also relates to perceived behavior control for a better prediction of behavioral intention and behavior. TRA does not take into account of situations where a behavior is not completely under an individuals' control, such as when people are not free to act because they lack appropriate opportunities or resources (e.g. time, money, or skills). TPB addresses this problem of incomplete volitional control by incorporating a third predictor; perceive behavioral control, which measures the perceived ease or difficulty of performing the behavior.

TPB suggests that the proximal determinants of behavior are intentions to engage in a behavior and perceived behavioral control over the behavior.

Intentions represent conscious plans or a decision to exert effort to perform the behavior. Perceived behavioral control is the perception that performance of the behavior is within one's control. Intentions are determined by attitudes, subjective norm, and perceived behavioral control. Attitudes are overall evaluations of the behavior. Subjective norms are beliefs about whether significant others think that the individual should engage in the behavior. Perceived behavioral control is the perception that the performance of a specific behavior is within an individuals' control (Higgins, & Conner, 2003).

Based on TPB model, individuals are likely to intend to consume herbal supplement if they believe that:

- (i) the behavior will lead to particular outcomes which they value,
- (ii) people whose views they value, think they should carry out the behavior,
- (iii) they have the necessary resources and opportunities to consume herbal supplement.

Behavioral intention is defined as a mental state that reflects a persons' plan to engage in some action within a specified period of time (Miller, Glawter, and Pribram., 1960). Intention is thus assumed to be the immediate antecedent of behavior. As a general rule, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the persons' intention to perform the behavior in question.

Attitude towards behavior refers to the persons' attitude towards performing a specific behavior. Ajzen and Fishbein (1980) view an attitude towards any concept is simply a persons' general feeling of favorable or unfavorable towards that concept. A person who believes that performing a given

behavior will lead to positive outcomes will hold a favorable attitude towards performing the behavior.

A distinctive aspect of Fishbein's approach is that the outcomes affecting attitude towards behavior are restricted to those that are salient, for instance, factors that are easily brought to mind by respondents. Ajzen and Fishbein (1980) argue that thoughts that do not readily come to mind in an elicitation are unlikely to affect behavior (Stavros, Michael, Robert, & Markos, 1999).

Beliefs play a central role in the TPB model. They are assumed to provide the cognitive and affective foundations for attitudes, subjective norms, and perception of behavioral control. Measure of beliefs provides estimates of attitudes towards the behavior, subjective norms, and perceived behavioral control. By measuring beliefs, we can gain insight into the underlying cognitive foundation by exploring why people hold certain attitudes, subjective norms, and perception of behavioral control. This information can prove invaluable for designing effective programs of behavioral intervention (Ajzen, 2002).

Estimates of attitude towards behavior are predicted by salient beliefs about a behavior weighted by the estimation of the outcome. In this research, based on the results of the pilot study, salient behavioral beliefs were measured by a profile of choice attributes such as quality product, natural product, attractive product design, and healthy choice. Perceived physical risk factors were also included in the measurement of salient belief. Allergic reaction and product contamination were among them.

Product quality is believed to have direct impact on consumers' choice decision. Perceived quality and perceived price are thought to be instrumental in the formation of attitude, which will subsequently influence market choice

behavior. High perceived value is expected to lead to willingness to purchase (Ziethmal, 1988).

Natural product is gaining popularity among today's modern societies. We continue to witness the disturbing effects of chemical based products in recent years. Natural product is gaining its popularity among developing countries.

A good design attracts consumers to a product, communicates to them, and adds value to the product by increasing quality of the usage experiences associated with it (Bloch, 1995). Products can be distinct from one another by different features, including design and style. The purpose of a good design is to draw consumers attention to a specific product (Kotler & Armstrong, 1997). Product design is another variable that can be used to influence consumers' behavioral intention towards choice preferences.

Herb based products are historically believed to promote healthy living. Till to date, herb related products are generally believed to improve health and to cure ailments. Healthy choice is a variable that can influence consumers' preference.

Wolters (1993) defined perceived risk as an individual's measurement of the consequences of someone's own behavior, as a result of purchasing certain product. A number of studies have examined how perceived risk affect consumer decision and behavior (Mitchell, 1992; Fraedrich & Farrell, 1992; MacCrimmon, 1986; Jaccby & Kaplan, 1972). Consumers are often uncertain about the outcome of a choice and concern about the consequences of poor or wrong purchase decision (Havlana, 1991). Consumer risk perception plays an important role, especially in the area of food safety concern because it shapes the behavior of consumers (May & Burger, 1996).

As consumer awareness and concerns of risk increase, risk calculations are likely to be central to an individual's life (Bugge, 1995). Consumers' perceived risk is a function of financial risk; the risk to harm ones' finances due to payment, functional risk; the risk about functioning of the product as expected, social risk; the risk to be underrated by others, physical risk; the risk about the physical safety of the product, and psychological risk; the risk to harm ones' self-image (Mitchell & Boustani, 1992).

Initial investigation of this study revealed that physical risk is the most relevant type of risk perceived towards herbal supplement. Thus, perceived physical risk is included in the measurement of salient beliefs.

From the perspective of consumer behavior, it appears that products that people choose can be influenced by their reference group. According to Mason (1981), highly visible products lead themselves to acquiring positive or negative social influence. Osterhus (1997) discovered that behavior tends to remain consistent within a social group.

A reference group is any person or group that serves as a point of comparison for an individual in forming either general or specific values, attitudes, or specific guides for behavior. Reference group that influence broadly defined values are called normative reference group Schiffman and Kanuk (2000).

Subjective norms are beliefs that whether significant others think that the person should engage in the behavior. Ajzen and Fishbein (1980) proposed that subjective norms are important attribute in shaping a persons' attitude towards performing a specific behavior.

Subjective norm controls the behavior that is instigated by the desire to act as others think one should act. Sometimes, socially worthy acts brings about

internally generated feelings of self-respect or pride, while failure to act in this way may invoke feelings of shame or self-reproach. The subjective norm is “subjective” because it is what the person thinks, and a “norm” because it is the persons’ understanding of what others think he or she should do (East, 1997).

Reference group that influence general behavior is identified as normative reference group. Estimates of subjective norm is predicted by normative beliefs about what relevant others (salient referents) would advise, modified by the respondents motivation to comply with the advise of those people.

Perceived behavioral control (PBC) is the perception that the performance of a specific behavior is within a persons’ control. PBC has motivational implications for behavioral intentions. Individual who believe they lack the necessary resources or opportunities to perform a particular behavior are unlikely to form strong behavioral intentions despite the fact that their attitude and subjective norm may be favorable. According to Madden, Ellen, and Ajzen, (1992), PBC may also influence behavior directly, independent of its action through intention. PBC is thus proposed to predict both intention and behavior. Bandura and team (1980) as cited in Starvos et al., (1999) provide empirical evidence that peoples’ behavior is strongly influenced by the confidence that they have in their ability to perform the behavior. Estimates of perceived behavioral control can be measured as the product of perceived access to a factor (c) and the power of the factor to assist in the action (p), Ajzen (2002). PBC are measured through control beliefs that may help or hinder the person in carrying out the behavior. Elicitation interviews of this research revealed that availability and affordability are the salient factors that forms perceived behavioral control towards intention to consume herbal supplement. This is in tandem with the measure of