

Contributing Factors to the Attractiveness of Natural Medicine Products

Ronny Kountur*, Yuanyuan Huo

Faculty of Business, Asia-Pacific International University, Muak Lek, Saraburi, Thailand

*Corresponding Author: rkountur@apiu.edu

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Abstract The study intended to identify factors contributing to the attractiveness of natural medicine products. A total of 185 respondents were asked using self-made questionnaire that has reliability of 78 to 91 percent. Three contributing factors were identified they are medicinal properties, product appearance, and distribution channel. No significant relationship was found between the contributing factors and income levels of the respondents. No significant relationship was found between the contributing factors and age group. A significant relationship was found between the contributing factors and education level of the respondents.

Keywords Natural Medicine, Medicinal Properties, Product Appearances, Distribution Channel, Income Level, Age, And Education Level

1. Introduction

Nowadays people are taking a more active role in managing their own health. Besides taking regular physical activities they are paying more attention to what they eat in order to maintain their health. As indicated by Verma & Singh (2008) natural products from plant, animal and minerals had been used as the basis of the treatment to human disease. Herbal medicine is still being used by 75-80% of world population, mainly in developing countries for primary health care because of better cultural acceptability, better compatibility with the human body and lesser side effects (Kamboj, 2000). These natural plant products are perceived to be healthier than manufactured medicine (Gesler, 1992). Miller's (1998) study found that increasing number of patients is using herbal medicinal without reporting to their clinicians. World Health Organization urged the use of folk healing practices and herbal medicines as part of the basic public health projects since 1978. As one of the developing country, Thai government attempt to support this development of herbal medicines (Thongruang, 2008). Because of the increasing interest in herbs and the availability of a wide variety of herbal plants, there is bright

potential for the herbal products market. However, at the same time, competition is also expected to be intensified. It is important for herbal products suppliers to study consumers' use of herbal medicines in order to provide products that meet their needs. Study showed that consumer characteristic is one of the most importance types of influence on consumer adoption of herbal medicines (Ritho, Klepser & Doucette, 2002).

A study in Bangkok by Thongruang (2008) reported that sixty three percent of the respondents purchased herbal drugs at the drugstores were female age ranging from 30-49 years; the majority of them had a Bachelor's degree and worked as government officials and state enterprises, and with income ranging from 5,001-20,000 baht per month. Another study (Satyapan, et al., 2010) found that twenty eight point six percent of Thai population in Bangkok used herbal medicines. Those who had the positive-attitude toward the use of herbal medicine were mostly government employees while those who refused to use herbal medicine were mostly the highly educated person. Moreover elderly and government employees usually purchased herbal remedies from hospital and drugstore while housewife purchased them from supermarket. Highly educated consumers usually bought them from hospital. As for Thai elderly, most had experience consuming herbal medicine. High percentage of them believed herbal medicine can help cure diseases, provide nourishment and food flavoring, and to relieve symptoms such as pain and maintain good general health. However, few of the elderly believed that the use of herbal medicine can substitute conventional medicines. About half of the respondents agreed on using both conventional and herbal medicines and the majority of them believed that consume herbal medicine could help to reduce family expenses as well as national health budget. Another study by Sumngern, et al., (2011) found that the higher the education level of a person, the higher the benefits of herbal medicine he or she perceived. In terms of factors influencing the perception toward herbal medicine products, the study of Thanisorn, Byaporn and Chanchai (2012) found that marketing mix (4Ps: product, price, place and promotion) were the key factors influencing consumers' perception particularly on facial herbal cosmetic products. Consumers

seem to concern more on the physical appearance, texture, odor, penetration characteristic, and viscosity of the products. Attitudes and beliefs about herbs and herbal products, self-efficacy, and social factors seem to affect their adoption of herbal medicine (Ritho, Klepser & Doucette, 2002).

Studies had been done to identify the consumer purchasing behavior and perception on herbal products as well as the factors affecting the use of herbal medicines. However no study had been done yet on the factors contributing to the attractiveness of natural medicine. Therefore the purpose of this study is to identify factors contributing to the attractiveness of natural medicine products. Specifically to answer the following questions: (1) what factors contribute to the attractiveness of the natural medicine products? Which factors account for the most variance? And, (2) do these respondents' contributing factors relate to their following characteristics: gender, income, age, and education level? The results of the study may be used by herbal product suppliers in developing products that satisfy the consumers' needs, and choosing the most effective ways to communicate their products to the customers.

2. Method

Survey research design was used in this study. Data were taken using self-developed questionnaire. To assure for the content validity of the questionnaire, items in the questionnaire were based on theory from literatures and from in-depth interviewed to eight persons that were selected purposively based on their familiarity with natural medicine. The number of persons that were interviewed was based on the saturation of the information. There was no more new information on the seventh and eighth person. Forty five items were constructed from in-depth interview and literature reviews. These items were tested to 60 respondents for their construct validity and reliability. Item that has Item-Reminder Coefficient (Spector, 1992) less than .30 were removed. Out of 45 items, sixteen items were removed that left 29 valid items. The valid questionnaire then was given to respondents.

Respondents were selected conveniently based on some criteria from Muak Lek and Bangkok, Thailand. The criteria used in selecting sample, the respondent were familiar with natural medicines, had been using the products, and age above 18 years of age. One hundred eighty five respondents participated in this study. However based on the respondent consistency coefficient (Kountur, 2011), forty five respondents are considered as bias that was not consistent in answering the questionnaire. These 45 respondents then were removed from the data. The remaining 140 respondents were used in analysis.

In answering the first research questions, exploratory factor analysis with principal factor extraction is used. The Kaiser-Meyer-Olkin test of sampling adequacy is used with .05 level of significant. In answering the second research question the chi-square statistic is used with .20

level of significant. The use of .20 is rare however still acceptable in social science research.

3. Results

What factors contribute to the attractiveness of the natural medicine products? Which factors account for the most variance? Principal factor extraction with varimax rotation was performed through XLStat on 29 items of self-developed questionnaire for a sample of 140 respondents. Kaiser-Meyer-Olkin's (KMO) overall measure of sampling adequacy (MSA) is .825 which is acceptable. KMO overall MSA greater than .60 is considered acceptable (Tabachnic & Fidel, 2013). However variable number 9 has measure of sampling adequacy of .459 which is less than .60. This variable is removed and the factor analysis is recomputed. The KMO overall MSA then increases to .854.

Three factors were extracted. As indicated by Cronbach's alpha, all of these three factors were internally consistent and well defined by the variables; the lowest Cronbach's alpha for factors from variables was .78 as shown in Table 1. Cronbach's alpha of .70 and above indicate that the variables in the factor are internally consistent or measuring the same thing (Saunders, Lewis, & Thornhill, 2012). The three factors contribute to the attractiveness of the natural medicine products are (1) the medicinal properties of the product, (2) the product appearance, and (3) the way the product is distributed.

Table 1. Cronbach's Alpha Measure of Internal Consistency

	Cronbach's alpha
Factor 1	0.91
Factor 2	0.82
Factor 3	0.78

The three factors (medicinal properties, product appearance, and distribution) explain 44.81% of the variance that make people attract to natural medicine. This loading is quite small since there are more factors that still unknown. Medicinal properties account for 24.25% of the variance, product appearances account for 13.15% of the variance, while distributions account for 7.41% of the variance. Loadings of variables on factors are shown in Table 2. Variables are ordered and grouped by size of loading to facilitate interpretation. Since substantial loading is above .45 (Tabachnic & Fidel, 2013), loading under of .45 or lower then was removed. Variable "pack in bottle" and variable "improve health" were removed. It is prevent illness ($r = .795$) and promote health ($r = .787$) that have the highest loading on the first factor that is medicinal properties. In ointment (.781) and pack in box (.745) have the highest loading in the second variable that is product appearance. Sold in convenience store 0.916) and sold in supermarket (.879) have the highest loading on the third factor.

Table 2. Loading of Variables on factors after Varimax rotation:

	F1	F2	F3
Prevent illness	0.795	0.094	0.139
Promote health	0.787	-0.016	0.041
Provide nourishment	0.764	0.031	0.063
Sold in pharmacy	0.753	-0.073	0.357
Relieve pain	0.739	-0.107	0.121
Provide information	0.728	0.116	0.129
Internet	0.704	-0.063	0.193
Treat illness	0.674	0.062	0.061
Treat diseases	0.670	-0.119	0.063
Mass media	0.655	0.104	0.098
Sold in drugstore	0.643	-0.164	0.410
Sold in hospital	0.603	-0.011	0.114
Food flavoring	0.561	0.000	-0.030
Packed in bottle*	0.381	-0.315	-0.032
In ointment or cream	-0.002	0.781	-0.061
Pack in box	0.035	0.745	0.021
In tea	0.062	0.692	-0.052
In powder	-0.041	0.659	0.056
Certainly effective	0.015	0.624	-0.082
Texture	0.203	0.596	-0.111
Heals illness	-0.234	0.572	-0.034
Accessibility	-0.125	0.495	0.148
Variation	-0.115	0.456	-0.019
improve health*	0.206	0.452	0.009
Sold in convenience store	0.151	-0.024	0.916
Sold in supermarket	0.256	-0.021	0.879
Friends	0.422	0.002	0.503

F1 = Medicinal properties; F2 = Product appearance; F3 = Distribution.

*Removed.

As shown in Table 3, the medicinal properties of the products may be described in terms of (a) the benefits such as prevent illness, treat illness/disease, promote health, relieve pain, and provide nourishment; (b) the availability - where can it be found whether in hospitals, drugstores, or pharmacies; and (c) the information about the product such as indicating the flavor, provide medicinal information, advertise through mass media or internet. The product appearance may be described in terms of (a) product

description such as how it can heal symptoms and how effective it is; (b) accessibility of the product such as easy to reach (access) and a lot of variety; (c) the substance such as in the form of powder, cream, tea, and having some texture; and (d) the way it is packed such as pack in box. The way the product is distributed (distribution channel) may be described in terms of (a) retailing such as sold in supermarket or convenience store; and (b) personal selling such as through friends.

Table 3. Factors Contribute to the Attractiveness of Natural Medicine

Factor 1 Medicinal Properties	Factor 2 Product Appearance	Factor 3 Distribution channel
<p>The benefits</p> <p>1. Prevent illness</p> <p>2. Treat illness</p> <p>3. Promote health</p> <p>4. Treat diseases</p> <p>5. Relieve pain</p> <p>7. Provide nourishment</p> <p>The availability</p> <p>21. Hospital</p> <p>22. Drugstore</p> <p>23. Pharmacy</p> <p>The information</p> <p>8. Food flavoring</p> <p>26. Provide information</p> <p>28. Mass media</p> <p>29. Internet</p>	<p>Product description</p> <p>10. Heals symptoms</p> <p>14. Certainly effective</p> <p>Product accessibility</p> <p>12. Accessibility</p> <p>13. Variation</p> <p>Product substance</p> <p>11. Texture</p> <p>15. In powder</p> <p>16. In ointment or cream</p> <p>17. In tea</p> <p>Packaging</p> <p>19. Pack in box</p>	<p>Retailing</p> <p>24. Sold in supermarket</p> <p>25. Sold in convenience store</p> <p>Personal Selling</p> <p>27. Friends</p>

Do the respondents' contributing factors relate to their characteristics? When respondents are grouped into which contributing factor they belong, further analysis was done to see whether contributing factors of respondents relate to their (a) income level, (b) age group, and (d) education level. A chi-square test of independence was calculated comparing the frequency of contributing factors in each category of income level, age, and education level. No significant relationship was found between contributing factors and income levels ($\chi^2(12) = 21.03, p = .913$). Respondents' contributing factors appear to be independent with income levels. No significant relationship was found between the contributing factors and age group ($\chi^2(8) = 15.50, p = .11$). Respondents' contributing factors appear to be independent with age groups. A significant relationship was found between the contributing factors and education level of respondent ($\chi^2(8) = 15.50, p = .072$). More high school graduate attract to natural medicine product based on its distribution (47%) and medicinal properties (42%) then based on its product appearance (11%). While college/universities graduate, the attractiveness to natural medicine product are almost the same that based on distribution (36%), medicinal properties (34%) and product appearance (30%). Unlike those with master or higher degree, their attractiveness to natural medicine product are more on distribution (44%) and product appearance (32%) then medicinal properties (24%). Those with secondary

school more attractive on product appearance (75%) then medicinal properties (25%), none of them attract on distribution.

4. Discussion

There are three factors that make people attract to the natural medicine products, they are medicinal properties of the product, product appearance, and how the products are distributed. They are listed according to the importance in explaining the attractiveness of the products. However the study of Silva, Udugama & Mudalige (2012) put price follow by food safety as the most important in consumer decision in regards to food products. It seems there is a different in the important of factors consumers look at medicine products and food products.

Since some people attract on natural medicine product based on the medicinal properties of the product, they will expect to find the product either in hospital or drug store and could treat human diseases. This finding consistent with the study done by Thongruang (2008) that found people purchase herbal drugs at the drugstore. It should be found in drugstore since natural products had been used to treat human diseases (Verma & Singh, 2008). In retailing service, access is one of the important factors (Jun, Yang & Kim, 2004).

It is how the natural medicine appears as product that has no side effect and perceived to be healthier that make people attract to this product, consistent with the study of Kamboj (2000) and Gesler (1992). The product appearance such as the texture, the packaging (cream, powder, or liquid), and the physical appearance are important factors to consider. As the study of Thanisorn, Byaporn and Chanchai (2012) found consumers seem to concern more on the physical appearance, texture, odor, penetration characteristic and viscosity of the products. Supermarkets, convenience stores, and personal selling are other alternative then drugstore or hospital as the place to distribute natural medicine products.

Different age seems has different perception on some feature of food products (Wright, Bruhn, Heymann & Bamforth, 2007) however in regards to natural medicine, age does not relate to the attractiveness of natural medicine. Although the variance of medicinal properties is the highest in explaining the attractiveness of natural products among the other two factors, it is not necessarily where majority of the consumers belong. As the study of Thanisorn, Byaporn and Chanchai (2012) which found that consumers are more concern of physical appearance. Majority of consumers with high school graduate attract by where the product are sold (distribution) and the medicinal properties of the product; while majority of consumers with high degree of education attract on where the product are distributed and the product appearance. As the study of Satyapan, et al. (2010) found those who refused to use herbal medicine are mostly the highly educated person. It seems that they are not interesting with the medicinal properties but more interesting on where the product are sold and the appearance of the product such as attractive packaging with description of no side effect and is perceived to be healthier, and with wide variety. More natural medicine should be sold in supermarket or convenience stores with clear message of no side effect and healthier. As medicine, it should be able to treat or prevent illness.

The study is limited only to natural medicine products. Similar study that includes other kinds of medicinal products may be conducted. Also, further study in regards to these three contributing factors may be conducted such as their effect on sales and advertising.

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