# The Influence of Demographic, Social System, Communication System, and Herbal Characteristics on Purchase Decisions of Herbal Medicine in Indonesia

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***Abstract*—Indonesia is very notable for its natural richness where its use is highly beneficial in the pharmacotherapy. Its products are made as herbal medicine (herbs, standardized herbal medicine, and fitofarmaka). Purchase decision is an important part of marketing process; therefore need to explore the relationship between several variables, such demographic, social system, communication system, and herbal characteristics that influence to it. The objective of this research was to determine usage profiles and some variables that influence the purchase decision of herbal medicine in Indonesia. Using a method of cross-sectional, survey was conducted to 150 villagers in West Java, the province known with large production of herbal medicine, with random data sampling. Profiles were shown by descriptive analysis, while the influence was determined by PLS. The results showed that 70% of people using herbs, 20% using standardized herbal medicine and 1.3% using fitofarmaka. Social system and herbal characteristics showed significant influence on purchase decision of herbal medicines, on the other hand demographics and communication system didn't show positive influence.**

***Index Terms*—Herbal medicine, demographic, social system, communication system, herbal characteristics, purchase decision.**

## I. Introduction

Indonesian herbal medicine are grouped into three which are, the first one is herb that has not been clinically tested, the second is standardized herbal medicine that has been through the pre-clinical trials, and the last is *fitofarmaka* that has been passed through preclinical testing and clinical trials [1]. In the results of the Basic Health Research in 2010, the data showed that approximately 59.12% of Indonesia's population is herb users. Average data of national users of herbs were 95.6% and they admitted that herbs are having health benefits (range between 83.23-96.66%). In 1991, [2] has told that over 80% Indonesian use herbs and its production are focused in java.

People who consume daily herbal were 4.36% (the highest in the province of Jakarta at 7.75% and the lowest in eastern Indonesia by 0.79%). Consumers of herbal medicine in the highest age range of 55-64 years and the lowest 15-24 years, so the elders felt the benefits of herbs are increasing in their age. Women are more likely to consume herbs as compared to men. People in the village consume herbal much more than in urban or in the city. Characteristics of consumers of herbal medicine who are having higher education felt the benefits are small. Similarly, school children feel less benefit, otherwise a group of people such unemployed, workers, fishermen, or farmers felt herbal medicine is the most medicine beneficially. Other data from social factor showed that the higher of family income apparently felt the lack of benefits of herbal medicine [3].

The use of herbs in American citizens showed an increasing trend of the use of herbal medicine, where that was not only used by patients under certain conditions but also in the general population where some studies show that one third of Americans use herbal medicine. Because of the increased expenses and the use of herbs was having a low risk, it is important to understand the effect on consumer purchase decision for herbal products [4]. However, not very much information is known about the factors associated with the expenditure or spending for herbal medicine. There are several research have identified factors associated with herbal spending, on the other hand there have been several studies using the theory of planned behavior to investigate the use of herbal medicine. Corner *et al.* reported a significant positive relationship between intentions on purchase decision herbal medicine.

In addition, other research identified the variables associated with consumer use of herbal medicine without the use of a clear theory because there is the possibility of a positive correlation between the use of herbal medicine and herbal medicine purchases [4]. We expect that the adoption of the model would explain the decision to purchase herbal medicine. Based on the model adopted by [5] to modified [6], the model used in this study is to determine four variables that have possibility to influence the purchase decision of herbal medicine, such demographic, social system, communication system, and herbal characteristics [4]. From the background which has been described, the objective of this study was to determine the profile and the influence of demographic, social system, communication system and herbal characteristics on the purchase decision of herbal medicine.

### A. Social System

A social system is defined as a set of interrelated units engaged in joint problem solving to achieve a common goal, perhaps household, informal groups, or social organization [6]. One study reported the effect of household size and marital status on the use of natural materials [7]. The study found that married people live in an environment that is less was more likely to use natural medicines. This could be due to the greater likelihood of a person in a social system (i.e., family) when trust the natural medicines that are hereditary properties. Social system may also include organizations from

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which consumers buy herbal medicines, such as herbal medicine shop. The use of herbal medicine shop was found to be a positive factor in the use of natural healing [8].

### B. Communication System

Communication is the process by which parties to create and share information with each other to achieve mutual understanding. There are two ways for this to happen, through a hereditary based prescription ancestors and inter-personal communication channels. 66% of the resource is based on formulas handed down ancestors and 34% of the sources of information about herbs are interpersonal [6].

### C. Herbal Characteristic

In this study, we focus on the subjective characteristics of the herbs, which include consumer confidence in natural healing. We asked consumers about their beliefs about natural healing. For example, we asked respondents about the reasons they prefer to use natural medicines as compared to prescription drugs from general practitioners [9].

### D. Purchase Decision

The consumer needs to be amended in line with changes in social life, economy, and culture of the environment in which they live. Such changes will affect consumer behavior in the purchase decision of goods and services.

There are three factors that underlie variations in consumer behavior in the process of making a decision to buy or use the product or service such environmental influences, individual characteristics, psychology [10].

Based on the theory presented hypotheses can be drawn as follows:

- $H_1$: Demographic ($X_1$) influence purchase decisions of herbal medicine ($Y$) in rural communities.
- $H_2$: Social system ($X_2$) influence purchase decisions of herbal medicine ($Y$) in rural communities.
- $H_3$: Communication system ($X_3$) influence purchase decisions of herbal medicines ($Y$) in rural communities.
- $H_4$: Herbal characteristics ($X_4$) influence purchase decisions of herbal medicines ($Y$) in rural communities.

## II. Method

### A. Population and Sample

Most of Indonesians live in villages and some islands. This is become one of reasons to conduct research in the village. The population in this study is the total society were about 200 heads of family, in one of the villages in West Java province in which the production of herbal medicine is largely manufactured, with different backgrounds and sample used was 150 respondents. Simple random sampling is used for convenience and to obtain data with a variety distribution.

### B. Research Tool

The questionnaire used some attributes of questions taken from several references. In demographic variables, there were 7 questions with a 1-5 Likert scale measurement. While for the social system variable that has total 14 questions, there were 6 questions adopted from [11], 2 questions were adopted from [12], 3 questions were adopted from [13], a question was adopted from [14], and two questions self-developed with a 1-5 Likert scale measurement. Within the communication system variable, there were total 11 questions with 6 questions were adopted from [14], 3 questions adopted by [12], 1 question was adopted from [13], and a question was adopted from [15] with a 1-5 Likert scale measurement. Within herbal characteristics variable, there were total 10 questions where 8 questions were adopted from [16], and 2 questions that each were adopted from [15] and [17] with a 1-5 Likert scale measurement. Finally, the purchase decision variable had total 10 questions in which there were 2 questions were adopted from [18], 4 questions were adopted from [19], 3 questions from [20], and a question was adopted from [15] with a Likert scale of measurement 1-5.

### C. Data Analysis

To determine consumers' profile herbal medicine, there was used descriptive analysis in office software, while hypothesis testing is used whereas for PLS due to the limited publications on related topics and distribution's results.

## III. Result and Discussion

Results of research conducted on 150 respondents consisted of varying gender, age, education, family status, monthly income and community habit of using herbal medicine (Table I).

Majority of the demographic data didn't show normal distribution, but only for gender and income that showed reverse side. Consequently there were numbers of validation and reliability tests on questionnaires have conducted until it showed good result for validation and reliability before it continued to hypothesis tests. PLS is also suitable for this type of data that did not show normal distribution condition.

On the table in next page (Table II) it can be seen that, the coefficient of respondent's demographic variable and purchase decision was -0.021 by *t*-value statistic was 0.152. Because *t*-value of the statistic was smaller than t-table (*t*-table for $\alpha$=0.05 is 1.98) then the hypothesis conclusion for the relationship was not significant meaning between characteristics of respondents on purchase decision. The negative effect can be due to several factors such as employment and education that affect their standard of living so that the higher of social status then more selective towards the selection of a drug[3]. Another possibility of the rejecting $H_0$ was come from people in the village was classified into low to middle economic level. Their ability to pay (ATP) was only available on herbs and herbs were sold in little store in the neighborhood.

The amount of the coefficient parameters of the purchase decision and social system was at 0.316 by t-value statistics was 1.983. Because the value of *t* statistic is greater than t-table then the hypotheses for this relationship has meaning that there was a significant positive effect for the social systems and purchase decision, where the higher the social system will increase the buying decision. Respondents were influenced by their close friends and also members of family about what kind of herbal medicine they were used, herbal medicine usage is also their part of culture etc.

The value of the coefficient parameters of the

communication system and purchase decision was 0.176 by *t*-value was 1.039. Because the value of the *t* statistic is smaller than t-table then it the hypothesis showed that there was no positive influence between communication system and purchase decisions. This could be due to lack of information obtained villagers sourced from print and electronic media. One of the obstacles in the electronic media is a distraction, any distraction is added to the signal that was not planned by the resources and occurs between the transmission and reception process. Interference can be distorted or whispered voice on the telephone wires, radio signal interference, or black spots on a television screen.

TABLE I: DEMOGRAPHIC (*N*=150)

| **Demographic** | ***n* (%)** |
|---|---|
| **Gender** | |
| Man | 58.7 |
| Woman | 41.3 |
| **Age** | |
| < 30 | 53.3 |
| 31 – 40 | 25.3 |
| 41 – 50 | 14.0 |
| > 50 | 7.3 |
| **Family Status** | |
| Married | 61.3 |
| Unmarried/divorce | 38.7 |
| **Education** | |
| Not finish school | 5.3 |
| Elementary | 13.3 |
| Junior high | 10.0 |
| High | 34.0 |
| Bachelor | 37.3 |
| **Income** | |
| < Rp 500.000 | 11.3 |
| < Rp 1.000.000 | 36.0 |
| Rp 2.000.000-3.000.000 | 29.3 |
| >Rp 3.000.000 | 23.3 |
| **Occupation** | |
| Government employee | 20.0 |
| Private employee | 17.3 |
| Farmer | 19.3 |
| Labor | 17.3 |
| Entrepreneur | 26.0 |
| **Types of Herbal Medicine** | |
| Herb | 70.65 |
| Standardized herbal | 20.65 |
| *Fitofarmaka* | 8.7 |

TABLE II: HYPOTHESES TEST RESULTS BETWEEN VARIABLES

| **Variable** | **Λ** | **t-value** | **R-square** |
|---|---|---|---|
| $X_1 \rightarrow Y$ | -0.021 | 0.152 | 0.550 |
| $X_2 \rightarrow Y$ | 0.316 | 1.983 | |
| $X_3 \rightarrow Y$ | 0.176 | 1.039 | |
| $X_4 \rightarrow Y$ | 0.369 | 2.404 | |

The last coefficient value of herbal characteristic and purchase decision was 0.369 by a value of *t* statistics was 2.404. Because *t*-value was greater than *t*-table then the conclusion has meaning that there was a significant positive influence of herbal characteristics on purchase decision, where the higher the characteristics of herbal medicine then it will improve purchase decision. Herbs were the lowest type of herbal medicine, where there was not pre-clinical test only rely to empiric or thought of old people. Meanwhile, the standardized herbal medicine and *fitofarmaka* were through preclinical and clinical (only for *fitofarmaka*) tests. In this case, the therapeutic effect of standardized herbal medicine and *fitofarmaka* is already indicated for certain illness. Because of long process of research through pre-clinical and clinical tests and expense huge costs so the price of these types of herbal medicine is more expensive than herbs. However, from survey it was indicated that numbers of people used herbs are much more than other types of herbal medicine.

Path's variables model of the influence of demographic, social system, communication system, and herbal characteristics on purchase decision was resulted the value of R-square at 0.550 that can be interpreted that the variability construct purchase decision that can be explained by variability constructs of demographic, social system, communication system, and herbal characteristics was 55%, while 45% is explained by other variables besides those explained.

## IV. CONCLUSION

The profile usage of herbal medicines in the village, as numerous as 70% of people use herbs, 1.3% using herbs and standardized herbal medicine, 20% use a standardized herbal medicine, and 8.7% using *fitofarmaka*. From the results it can be seen that the two variables are significantly influence purchase decision of herbal medicine was social system and characteristics of herbal. People believe that herbal medicine is more effective than synthetic medicine after some information or promotion was received from their close friends and relatives.

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