AN INVESTIGATION OF THE KNOWLEDGE CONCERNING MEDICINAL PLANT USE IN ALLEGANY COUNTY, MD AND SOMERSET COUNTY, PENNSLYVANIA

By

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ABSTRACT

This study was conducted to determine if people in Allegany County, MD, and Somerset County, PA, know about and use medicinal plants. With this information, trends of medicinal plant use in the research area can be seen. The group hypothesized: (1) the majority of people in Allegany County, MD, and Somerset County, PA, use medicinal plants; (2) the majority of those who do use them learned to use them from family and friends; (3) the most popular medicinal plant used is *Aloe vera; (*4) people over the age of forty use medicinal plants more than those under the age of forty; and (5) women use medicinal plants more than men. Surveys and interviews were used for data collection. A total of 456 surveys were taken in order to accurately represent the population of the research area. Interviews were conducted until the data was saturated. It was concluded that the majority of people in the research area use medicinal plants, the majority of those who do use medicinal plants learned from family and friends, and the most popular medicinal plant used is *Aloe vera*. It was also found that age and gender are not correlated to medicinal plant usage. Therefore, this data shows the knowledge and trends concerning the use of medicinal plants in Allegany County, MD, and Somerset County, PA.

INTRODUCTION

Plants are important for a variety of reasons. For example, many people use plants for medicinal purposes. Some example, Eastern native plants used for medicine or health purposes include: Sassafras (*Sassafras albidum*), which is used to treat stomachaches, arthritis, and high blood pressure; Sweet Birch (*Betula lenta*), which is used as a pain reliever; Black Willow (*Salix nigra*), which is used for headaches and diarrhea; Black Locust (*Robinia pseudoacacia*) which is used for purgation and tooth aches; and Balsam Fir (*Abies balsamea*) which is used for burns, sores, bruises, wounds, and asthma (Foster, 2000).

Another important medicinal plant is *Aloe vera*. *Aloe vera* is in the Liliaceae family and is characterized by jagged edges and long, thick leaves. It is native to the European and Asian continents, and it has also been used for many things through out the history of man. For example, *Aloe vera* was used as early as 1550 B.C. by the ancient Egyptians for embalming and preserving mummies. *Aloe vera* was also used on burn victims of the Oklahoma City bombing, and on radiation burn victims of the Hiroshima bomb. It is furthermore an immunity booster and is used by people with AIDS and HIV (Pro Peaks, 2003). The aloe leaf has 75 nutrients with 200 active compounds including 20 minerals, 18 amino acids, and 12 vitamins (Honaker, 2003).

Plants can be used by different genders for different reasons. According to the literature, men and women have different needs for using medicinal plants. Men appear to prefer plants such as Guinea Pepper (*Aframomum melegueta*) and West African Pepper (*Piper guineense*) to enhance virility (Kamtchouing, 2002). Women, on the other hand, use medicinal plants such as St. John's Wort (*Hypericum perforatum*), Black Cohosh (*Cimicifuga racemosa*), and Blue Cohosh (*Caulophyllum thalictroides*) for menopausal symptoms (Grube 1999, Foster 2000).

Methods by which people learn how to use medicinal plants can include traditional knowledge. Traditional knowledge is knowledge that is passed down from generation to generation. One of the most common forms of traditional knowledge includes making medicine from plants that can be used for healing purposes. For example, extracts from the mucilage of a plant can be put in medicine. Other ways to extract medicines from plants include drying and pounding the plant.

The statement of purpose for this study is to determine if people in Allegany County, MD and Somerset County, PA know about and use medicinal plants. With this information, trends of medicinal plant use can be seen in the Frostburg region. The group hypothesized: (1) the majority of people in Allegany County, MD, and Somerset County, PA, use medicinal plants; (2) the majority of those who do use them learned it from family and friends; (3) the most popular medicinal plant used is *Aloe vera*; (4) people forty-one and up use medicinal plants more than the younger people; (5) women use medicinal plants more than men.

METHODS

For the study, people were randomly surveyed and interviewed in Somerset County, PA and Allegany County, MD. Sites were chosen on the basis of easy access to the location and the availability of people. Surveys and interviews were conducted with people who live in Frostburg, MD; Cumberland, MD; LaVale, MD; Somerset, PA; and Rockwood, PA. Surveys and interviews were conducted from 9:30 a.m. to 12:45 p.m. and 1:45 p.m. to 3:45 p.m. from Monday through Thursday on July 14th through July 23rd, 2003.

To determine the number of people needed to survey, a sample size was statistically calculated. Sample size is a representative portion of the community's population. To find out how many surveys were needed, the following sample size formula was used:

$$\text{Sample size} = \frac{\chi^2 NP(1-P)}{C^2(N-1) + \chi^2 P(1-P)}$$

In this equation, "χ^2" is a constant value of 3.841. "N" represents the population size for Allegany County, MD and Somerset County, PA (155,000 people). "P" is the population parameter of 0.5. The "C" is a 95% confidence interval (.05), which is the probability that the samples that were collected represent the population. After completing all the steps necessary to solve the equation, a total sample size of 383.2 was reached and rounded to 400 (Krejcie and Morgan, 1970; Bernard, 1995).

Surveys use closed questions which can be answered with a yes or no, multiple choice, or short answer (Salanz and Dillman, 1994). They usually last for no more than a minute and do not require extended responses from participants. For the surveys, five questions were asked and the age and gender were recorded in order to classify and understand the demography of people who use medicinal plants (See Appendix I). The survey information was then transcribed into a worksheet on Microsoft Excel.

To obtain more information, interviews were also conducted. Interviews use open-ended questions, meaning the questions are meant to be answered with lengthy answers. Both specialists and non- specialists were interviewed. Specialists are people with advanced training in a particular area. The non- specialists are people without formal training or knowledge in a given area. After all interviews were completed, the data was entered into Microsoft Excel. In the next step, responses were evaluated to ensure that saturated data analysis was accomplished. Saturated data analysis is continuing data collection until a question has been answered beyond all reasonable doubt and all responses to a question have been represented (Bernard, 1995).

RESULTS

Four hundred and fifty-six people were surveyed. The following figures demonstrate the knowledge of medicinal plants from people in the Frostburg region.

USE OF MEDICINAL PLANTS

Figure 1 demonstrates the use of medicinal plants across both genders and all age groups. The results show that 57% of the surveyed population use medicinal plants. Some examples of medicinal plants used by the people interviewed include: Echinacea (*Echinacea augustifolia*), Chamomile (*Matricaria recutita*), Ginseng (*Panax quinquefolius*), Black Cohosh (*Cimicifuga racemosa*), and Aloe (*Aloe vera*).

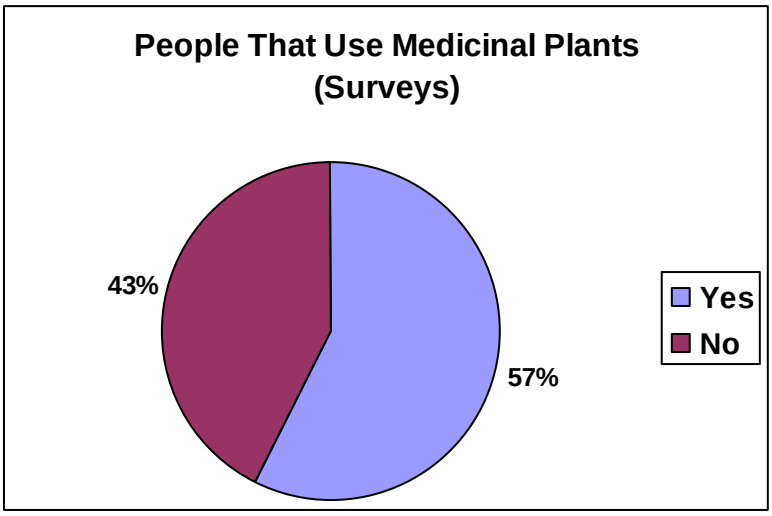

Fig.1 - Number of people surveyed that use medicinal plants.

SOURCE OF MEDICINAL PLANTS KNOWLEDGE

Figure 2 represents the source of people's knowledge and use of medicinal plants. Out of the 261 people who said "yes," 136 learned how to use medicinal plants from friends or family members, 69 learned from books/ study/magazine and 21 learned from other sources. The majority of the people who were interviewed also learned how to use medicinal plants from someone in their family (mother, grandmother, cousin, or sister).

Many of the people who did not use medicinal plants were at least aware of their existence. Most of these people said that they would probably not use medicinal plants in their lifetime, but all of them were unaware that aloe, chamomile tea, and certain vitamins were actually medicinal plants.

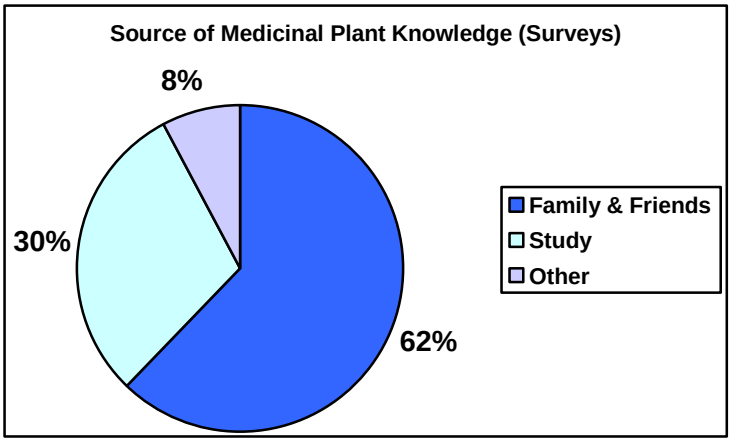

Fig.2. - Data on the people surveyed concerning source of knowledge on medicinal plants.

Most Popular Plant used in Allegany and Somerset County

According to Figure 3, despite the use of many different medicinal plants, the most common medicinal plant people use in the Allegany and Somerset County region is Aloe (*Aloe vera*). The people interviewed listed sunburn, colds, menopause, osteoporosis, dry skin, and memory loss as the most common ailments they treat with medicinal plants.

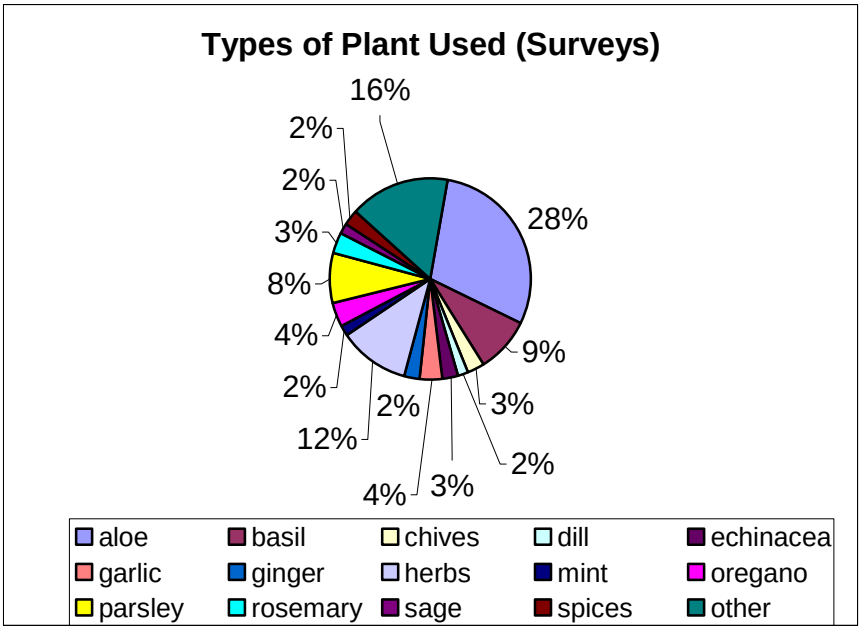

Fig.3. - Different types of plants used by people surveyed

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How Age Affects Use of Medicinal Plants

Out of the 456 people that were surveyed, 296 of the people were over the age of forty, and 170 of those people actually use medicinal plants. Likewise, 91 of the 160 people under the age of forty use medicinal plants.

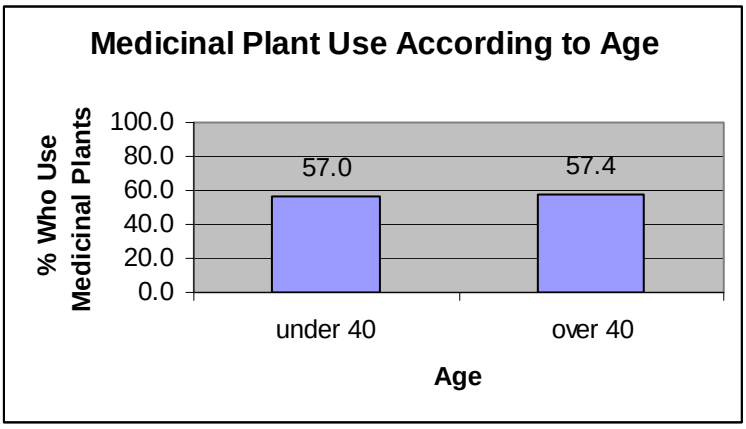

Fig.4. - Percentage of people surveyed who use medicinal plants, according to age

How Gender Affects Use Of Medicinal Plants

Out of 257 women surveyed, 155 use medicinal plants. Out of 199 men surveyed 106 use medicinal plants.

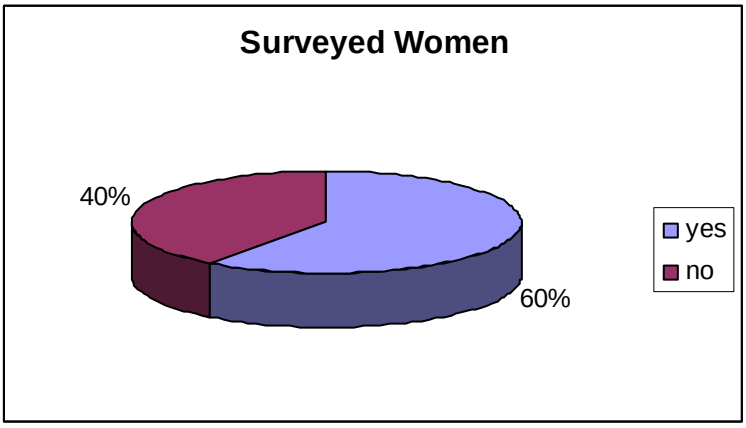

Fig.5. – Percentage of women surveyed who do/do not use medicinal plants.

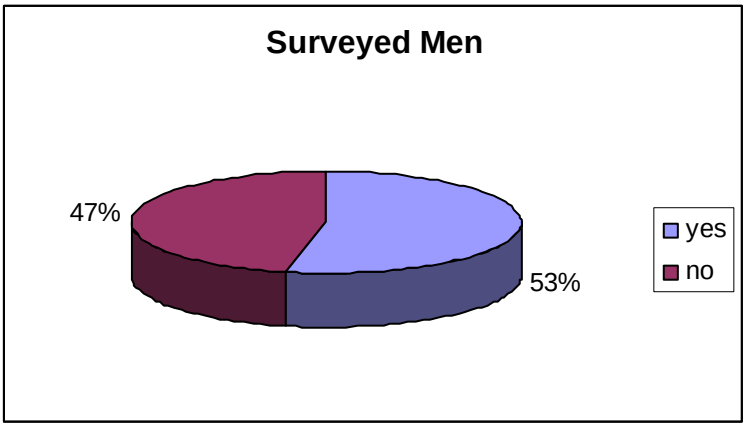

Fig.6. – Percentage of men surveyed who do/do not use medicinal plants.

Chi-square Test

A chi-square test was performed to analyze both gender and age as they relate to medicinal plant use. The test showed that a relationship does not exist for either variable.

DISCUSSIONS AND CONCLUSIONS

The hypothesis that the majority of people in Allegany County, MD, and Somerset County, PA, use medicinal plants was accepted. According to Figure 1, there was a 95% confidence that 57% of the people surveyed use medicinal plants, while only 43% of the people do not. The hypothesis that the majority of those that do use medicinal plants learned from family and friends was also accepted. This hypothesis was accepted because, according to Figure 2, 62% of the people surveyed learned from family and friends, 30% learned from a study, and 8% learned from other sources. The hypothesis that aloe was the most commonly used medicinal plant was also accepted as 28% of the people surveyed use aloe. Finally, the hypotheses that people forty-one and up use medicinal plants more than younger people and the hypothesis that more women use medicinal plants more than men were both rejected. According to Figure 4, 57% of the people surveyed that were under the age of forty use medicinal plants while 57.4% of the people over forty use medicinal plants. Figure 5 shows that 60% of the women surveyed used medicinal plants, while Figure 6 shows that 53% of the men use medicinal plants. However, according to the Chi-squared test there is no statistical relationship between the age of people that use medicinal plants and between the gender of people that use medicinal plants. The significance of these findings is directly related to the hypotheses. Now that the trends of medicinal plant usage are known further, efforts can be made to maintain the traditional knowledge of the region.

While conducting this study, new questions were raised. For example: Are medicinal plants more effective than over the counter medications? Will the amount of people who use medicinal plants decrease or increase as time passes?

During our study, a few limitations were encountered. One of the limitations included people's knowledge. For instance, some of the people surveyed may have been using an alternative medication, and they may not have realized it. For example, a person may have been drinking chamomile tea and may not have known that it can be used as a relaxant. Next, there was a time constraint that only allowed us eight days to complete our surveys and interviews. If there was more time, then more interviews could have been completed and a greater amount of data could have been gathered.

Those limitations could be resolved with the following suggestions longer time frame to complete the surveys and the interviews, more high traffic and high populated areas in which to survey, and more specific survey questions.

APPENDIX I

Survey Questions:

Location:
Circle One: Female Male
Age: (18-20), (21-30), (31-40), (41-50), (51+)

1. Have you ever used any plants for medicinal and or cooking purposes? **(YES) (NO)** If so which do you use most often?
   _____
   _____
   _____

2. Do you ever use medicinal plants in place of manufactured products (i.e. Lotion, aspirin, etc)? **(YES) (NO)** If so, which ones?
   _____
   _____
   _____

3. If you use medicinal products how often do you use them?
   a. **Once a day**
   b. **Once a week**
   c. **Once a month**
   d. **Never**
   e. **Other_____**

4. If you use plants for medicinal purposes where did you learn it from
   a. **A family member**
   b. **A book/magazine**
   c. **Other_____**
5. Do you garden using native plants? **(YES) (NO)**

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