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# Older Adults' Knowledge and Attitude Toward Uses of Herbal Therapy

**[1]Nada Mohammed Abdulla, [2] Sageda Magdi Ali, [3] Eman Baleegh Meawad Elsayed,[4] Neamit Ibrahim Elemam Ahmed Elashri**

1Demonstrator of Gerontological Nursing Department, Damietta University, Egypt

3Assist. Professor, College of Nursing, King Khalid University, Kingdom of Saudi Arabia. Professor, Faculty of Nursing, Mansoura University, Gerontological Nursing department, Egypt

2, 4 Assist. Professor, Faculty of Nursing, Mansoura University, Gerontological Nursing department, Egypt

## ABSTRACT

**Background**: The phenomenon of "back to nature" is becoming popular around the world accompanied by increasing health challenges that older adults population facing; there is a growing interest in using herbal therapies as alternatives treatment approaches with traditional medicines. **Aim:** Assess older adults' knowledge and attitudes toward uses of herbal therapy. **Methed:** A descriptive research design was used. The study was conducted at geriatric outpatient clinic of Specialized Medical Hospital of Mansoura University and geriatric outpatient clinic of Mansoura Specialized Hospital. A convenience sample of 218 older adults who met the inclusion criteria.Three tools were used; Structured Interview Sheet, Herbal therapy knowledge sheet, Attitudes toward use of herbal therapy sheet. **Results:** It was found that, 50% of studied older adults had poor level of knowledge and 59.6% had positive attitude toward herbal therapy use. **Conclusion:** A highly statistically significant positive correlation was found between total scores of knowledge and attitude of studied older adults toward uses of herbal therapy. **Recommendations:** Designing educational health programs for older adults regarding benefits and risks of herbal therapy. Designing of health technology mobile apps regarding herbal therapy pros and cons for older adults.

***Keywords***: *Older Adults, Knowledge, Attitudes, Herbal Therapy*

## Introduction

Herbal therapy is consider one of the oldest forms of therapy known to humanity (Al-Nadaf & Awadallah, 2020). Increasing use of herbal therapy for general health medical purposes is seen in developed and developing countries, World Health Organization estimates 80% of world's population relies on herbal remedies as basic health care (Rajendran & Kamarulzaman 2023). As older adults population face increasing health challenges, there is a growing interest in using alternative approaches as herbal therapies that can promote health and general well-being (Nurhafni, 2024). The prevalence of chronic diseases in older adults is high and some use herbal therapy instead of or together with drugs, so the prevalence of usage herbal therapy among older adults is high, ranging between 12.0%-97.4% (Ananchaisarp et al, 2021).

The use of herbal therapy is very common among the older adults more often than other age group. Factors that influence older adults' readiness to use herbal therapy products vary from country to another. Some older adults often use herbal therapy to improve health and well-being, while other use it to relieve symptoms of chronic or terminal illnesses, or to avoid the side effects of modern medicines (Huang et al., 2024).

Knowledge is a very important domain in shaping a human behavior so, developing pattern of behavior may attributed to the knowledge that exists in human beings. Knowledge is influenced by many factors as age, education, socio-culture, environmental experiences and it can be obtained through formal education and life experiences (De Felice et al., 2023). Human is using herbs since the dawn of civilization and at the time of beginning using herbal therapy, there was not sufficient information regarding using it in healing and curing from diseases, everything was based on experience through trial and error and this interaction of human and herbs leads to the establishment of the traditional knowledge of herbs (Choudhury et al., 2021).

From the "knowledge-attitude-behavior" theory, knowledge forms an individual's attitudes which act as a foundation for behavior and force the person to react in a specific way (Ng et al., 2022). The attitude toward herbal therapies that it promote healthier living is cited as a main reason for its popularity worldwide (Kumar & Ashaq, 2021). Many older adults have turned to herbal products preparations to prevent and treat diseases owing to the popular attitude that herbs are natural and safe (Wahab et al, 2021). But, the naturalness of herbs does not guarantee that it generally safe and devoid of any reactions or toxicity (Cole et al., 2020).

Assessment of the knowledge and attitude of older adults regarding herbal therapy is very crucial. Many older adults consuming herbal therapy without prescription and also labelling of herbal therapy products may not accurately reflect their contents so, using of herbal therapy must be accompanied by valid knowledge and recent information that help the older adults to use it in the right way and avoid harmful side effects (Agbabiaka, 2020). Guidance older adults by a health care professional especially nurses about appropriate using of herbal therapies that designed to common geriatric issues is very crucial, this guidance helping in enhance older adults' health, raising awareness regarding herbal therapy and protect older adults from misusing herbal therapy (Nurhafni et al., 2024).

**Aim of Study:**

Assess older adults' knowledge and attitudes toward uses of herbal therapy.

**Subjects & Method:**

**I. Study Design:**

A descriptive research design was used to conduct this research.

**II. Study Setting:**

The study was carried out at the geriatric outpatient clinic of Mansoura University specialized medical hospital, and the geriatric outpatient clinic of the Mansoura specialized hospital.

**III. Study Subjects:**

A convenience sample of 218 older adults attending above mentioned setting were selected according to the following criteria; aged 60 years and above of both sexes, participating in the study voluntary, able to communicate and available at the time of data collection

**IV. Sample size:**

Based on data from literature **(Fathy et al., 2019)**, to calculate the sample size with precision/absolute error of 5% and type 1 error of 5%, Sample size is calculated according to the following formula,

$$n = \frac{\left(Z1 - \frac{\alpha}{2}\right)^2 . P(1-P)}{d^2}$$

where, $Z_{1-\alpha/2}$ at 5% type 1 error ($p<0.05$) is 1.96, P is the expected proportion in population based on previous studies and d is the absolute error or precision. Therefore, sample size

$$n = \frac{(1.96)^2 . (0.132)(1-0.132)}{(0.045)^2}$$

=217.4.

Based on the formula, the total sample size required for the study is 218 of older adults.

**V. Data collection Tools**

Data were collected by three tools, which include:

**Tool I: Structured Interview Sheet;** this tool was developed by researcher after reviewing of relevant literatures (Alghadir et al., 2022; Ananchaisarp et al, 2021; Abdelmola et al., 2021; Wahab et al., 2021). It divided into 3 parts:

**Part I:** Demographic data that includes questions regarding; age, sex, education level, current work, residence, monthly income and source of income.

**Part II:** Health related data that includes questions regarding; type of chronic diseases, number of chronic diseases and number of medication use.

**Part III:** Data related uses of herbal therapy that include questions regarding; information about herbal therapy, sources of information, receiving health education, importance of doctor inquiry, previous therapeutic use, reasons of not using and other relevant questions related using of herbal therapy.

**Tool II: Herbal Therapy Knowledge Sheet;** this tool was developed by the researcher after reviewing of relevant literatures (Mohammed et al., 2022; Alshammari et al., 2022; Zaidi et al, 2021; Al-Nadaf & Awadallah, 2020). It's valid and reliable r=0.820, and consisted of 18 items related to older adults' knowledge toward use of herbal therapy. Responses for this section (correct and incorrect), where correct answer scored =1; and incorrect answer scored =0. The total score is 18 points and classified as; score more than 75%

considered good knowledge (14-18); score from 75% to 50% considered moderate knowledge (9-13); score less 50% considered poor knowledge (0-8) **(Elzeky & Shahine, 2022)**.

**Tool III: Attitudes Toward Use of Herbal Therapy Sheet:** this tool was developed by the researcher after reviewing of relevant literatures (Taher & Ibrahim, 2023; Zaidi et al, 2022 Aragaw, Afework, & Getahun, 2020). It's valid and reliable r= 0.912, and consisted of 15 items related to older adults' attitudes toward use of herbal therapy. Responses for this section was rated on three- point Likert scale from disagree (=1), natural (=2), agree (=3). Scores ranging between negative and positive attitudes. Total score is 45 points and classified as; score less than 60% considered negative attitudes (1 to 27); score from 60% and more considered positive attitudes (28 to 45) **(Tekle et al., 2020).**

**V. Data Collection Process**

The process of data collection was going through two phases:

**Phase I: Preparatory phase:** It included the following steps:

1. **Administrative step:** a formal letter for conducting study was obtained from Vice Dean of the College of Nursing for Postgraduate Studies and Research, Mansoura University and was directed to Vice Dean of the College of medicine for Postgraduate Studies and Research, Mansoura University. Then, the letter was directed to the manager of each hospital (Specialized Medical Hospital and Mansoura Specialized Hospital) to obtain their approval for conducting study.

**2. Developing Study Tools Step:**

- Tool I, II, III (Structured Interview Sheet, Herbal Therapy Knowledge Sheet, Attitudes toward Use of Herbal Therapy Sheet) were developed by researcher after reviewing of relevant literature. These tools were translated into Arabic language by researcher (the local language of the studied sample). An expert in English language employed back translation to confirm the accuracy and equivalency of the tools translation.

- **Content validity of Study tools:**

The study tools were revised for its content validity by a panel of nine experts in the field of Gerontological Nursing, Mansoura University. Necessary and correct modification were done according to their opinions. These modification were related to changing the ranking of aging, adding the "internet choice" to the question regarding source of obtaining herbal therapy, removing and paraphrasing of some question in three tools of the study. Then, the final form was used for data collection.

- **Face Validity of Study Tools:**

The study tools were tested for its face validity by conducting a pilot study on 10 % (N= 22) of older adults before starting data collection to confirm of study tools questions for its clarity and applicability.

- **Reliability of Study Tools:**

The study tools (II, III) were tested for its reliability by using Cronbach's Alpha test. The Cronbach's alpha value (internal consistency) of the knowledge tool (II) "Herbal therapy knowledge sheet" was 0.820 and of the attitude tool (III) "Attitudes toward use of herbal therapy sheet" was 0.912 which indicated high reliability.

**Phase II: Operational phase:** This phase took four months for completion. Its implementation began at the beginning of December 2023 to the end of March 2024 with these subsequent steps:

- When the necessary approval was obtained by the manager of each hospital, the researcher started data collection and attended the study setting according to the schedule of working; geriatric outpatient clinic of Specialized Medical Hospital (Saturday & Wednesday) and geriatric outpatient clinic of Mansoura Specialized Hospital (Sunday & Thursday).
- The researcher met older adults' patients in the waiting area of geriatric outpatient clinics of both hospital and sometime entered the clinic of geriatric outpatient clinic of the Specialized Medical Hospital to continue the data collection.
- The researcher started data collection by introduced herself to the older adult's patients and their caregivers (if present), giving them a brief idea about the aim of the study. Every older adults was interviewed individually by the researcher in order to collect the necessary data using study tools. The researcher could interview with 3 to 4 older adult patients on each day of the data collection schedule. The time varied according to older adults' patients' level of understanding and his/her cooperation with the researcher.

**Ethical Considerations of the Study**

An ethical approval was obtained from Research Scientific Ethics Committee of Faculty of Nursing-Mansoura University at mid of May 2023 with reference number **(Ref.No.337)**. An informed consent was obtained from each older adults patients got in study after providing through report about nature of study, aim, benefits and risks. Each older adult patients was assured that the participation was voluntary, and they had permitted to withdraw from study at any time without any penalty.

**Statistical Analysis of the Data**

The collected data were analyzed using SPSS software (Statistical Package of Social Sciences, version 23). Descriptive statistics were displayed as frequencies and percentages for categorical variables whereas Continuous variables were represented as mean and standard deviation. For inferential statistics, three tests were used namely as; **(a)** Chi-square test; to test the association between two categorical variables, **(b)** Pearson correlation coefficient test; to test the association between two continuous variables, **(c)** Cronbach's Alpha test; to test reliability or internal consistency of study tool. Statistically significant was considered at p-value ≤ 0.05 &0.01).

**Results:**

**Table 1:** Shows that, 92.7% aged between 60–75 years old with a mean of 65.53±5.72 years. Females constituted 69.7% of the studied sample. Also, 66.1% of studied older adults were illiterate and 53.2% were residing in rural areas. 80.3% and 66.1% of studied sample didn't have enough income and depended on pension respectively.

**Table 2:** representes that, all studied older adults suffering from chronic diseases. Diabetes Mellitus was the most common chronic disease reported among the studied older adults (60.1 %).

**Table 3:** showes that, 69.7% of those who used herbal therapy were used it for more than one year, 48.5% of users were used herbal therapy for osteoarthritis, 66.7% were obtained herbal therapy through apothecary and 45.5% didn't consult own physician before using herbal therapy.

**Figure 1:** reveales that, 84.9% of studied older adults were not using herbal therapy for treating chronic diseases. On the other hand, 15.1% of studied sample had previous use of herbal therapy.

**Figure 2:** Showes that, 50% of the studied older adults had poor knowledge level regarding herbal therapy use while only 8.3% had good knowledge level.

**Figure 3:** Revealed that, 59.6% of the studied older adults had a positive attitude toward herbal therapy use while 40.4% had a negative attitude.

**Table 4**:Represented a highly statically significant differences was found between sex, educational level, residence, number of chronic diseases and number of medications of the studied older adults and herbal therapy knowledge level (P=0.001$^{**}$, 0.001$^{**}$, 0.004$^{**}$, 0.001$^{**}$ , 0.001$^{**}$) respectively. A higher percentage of poor level of herbal therapy knowledge was found among the studied older adults male, those from urban areas, illiterate, had two chronic diseases and took less five type of medication.

**Table 5:**Showed a highly statically significant differences was found between sex, residence, number of chronic diseases and number of medications of the studied older adults and herbal therapy attitude level (P=0.016$^{**}$, 0.003$^{**}$, 0.001$^{**}$, 0.001$^{**}$) respectively. A higher percentage of positive attitude was found among the studied younger older adults, female, from rural areas, and who had insufficient income with more than 2 chronic diseases.

**Figure 4:** Showes a highly statistically significant positive correlation was found between total scores of knowledge and attitude toward uses of herbal therapy of the studied older adults. (r=0.653, P<0.001**).

**Table 1: Demographic data of the studied older adults (n=218)**

| Items | N= 218 | 100% |
|---|---|---|
| **Age (years)** | | |
| From 60 to less than 75 years | 202 | 92.7 |
| From 75 to less than 85 years | 16 | 7.3 |
| **Mean ± SD (Min-Max)** | **65.53±5.72 (60-84)** | |
| **Sex** | | |
| Female | 152 | 69.7 |

| | | |
|---|---|---|
| Male | 66 | 30.3 |
| **Educational level** | | |
| Illiterate | 144 | 66.1 |
| Read and write | 40 | 18.3 |
| Secondary education | 31 | 14.2 |
| University education | 3 | 1.4 |
| **Residence** | | |
| Rural | 116 | 53.2 |
| Urban | 102 | 46.8 |
| **Monthly income** | | |
| Not enough | 175 | 80.3 |
| Enough | 43 | 19.7 |
| **Source of income**[#] | | |
| Pension | 144 | 66.1 |
| Helping sons | 85 | 39.0 |
| Legacy | 25 | 11.5 |
| Social Affairs | 46 | 21.1 |

[#] More than one answer was given

**Table 2: Health Related Data of the Studied Older Adults (n=218)**

| Items | N=218 | 100% |
|---|---|---|
| **Suffering from chronic diseases** | | |
| Yes | 218 | 100.0 |
| **Type of other diseases#** | | |
| Diabetes Mellitus | 131 | 60.1 |
| Osteoarthritis | 125 | 57.3 |
| Hypertension | 97 | 44.5 |
| Osteoporosis | 17 | 7.8 |
| Cardiovascular disease | 14 | 6.4 |
| Liver disease | 10 | 4.6 |
| **Number of chronic diseases** | | |
| One disease | 104 | 47.7 |
| Two diseases | 84 | 38.5 |
| More than two diseases | 30 | 13.8 |
| **Number of medications** | | |
| Less than 5 medications | 177 | 81.2 |
| 5 medication and more | 41 | 18.8 |

# More than one answer was given

**Table 3: Characteristics of Herbal Therapy Uses Among the Studied Older Adults (n=33)**

| Items | n=33 | 100% |
|---|---|---|
| **Duration of herbal therapy use** | | |
| From one day-Thirty days | 6 | 18.2 |
| From one month-Twelve months | 4 | 12.1 |
| More than year | 23 | 69.7 |
| **Types of diseases that herbs are used to treat it #** | | |
| Osteoarthritis | 16 | 48.5 |
| Obesity | 11 | 33.3 |
| Hypertension | 9 | 27.2 |
| Diabetes Mellitus | 3 | 9.1 |
| **Reasons of using herbal therapy#** | | |
| Believe in benefits and safety of herbal therapies | 23 | 69.7 |
| Hopelessness with conventional therapy | 2 | 6.1 |
| High costs of medication | 5 | 15.2 |
| Health care providers suggest use | 4 | 12.1 |

| | | |
|---|---|---|
| Friend advice | 8 | 14.2 |
| **Effectiveness of herbal therapy use** | | |
| No effect | 17 | 51.5 |
| Improvement of health status | 15 | 45.5 |
| Presence of side effects | 1 | 3.0 |
| **Using more than one type of herbal therapy together** | | |
| Yes | 9 | 27.2 |
| No | 24 | 72.8 |
| **Type of herbal therapy form used #** | | |
| Beverage | 20 | 60.6 |
| Ointment | 10 | 30.2 |
| Coated capsules | 8 | 24.2 |
| **Source of obtaining herbal therapy #** | | |
| Apothecary | 22 | 66.7 |
| Internet | 7 | 21.1 |
| Pharmacist | 6 | 18.2 |
| **Consultation of own physician before using herbal therapy** | | |
| Yes | 13 | 39.4 |
| No | 15 | 45.5 |
| I, don't care | 5 | 15.1 |

# More than one answer was given

**Figure 1: The Use of Herbal Therapy for Treating Chronic Diseases Among the Studied Older Adults (n=218)**

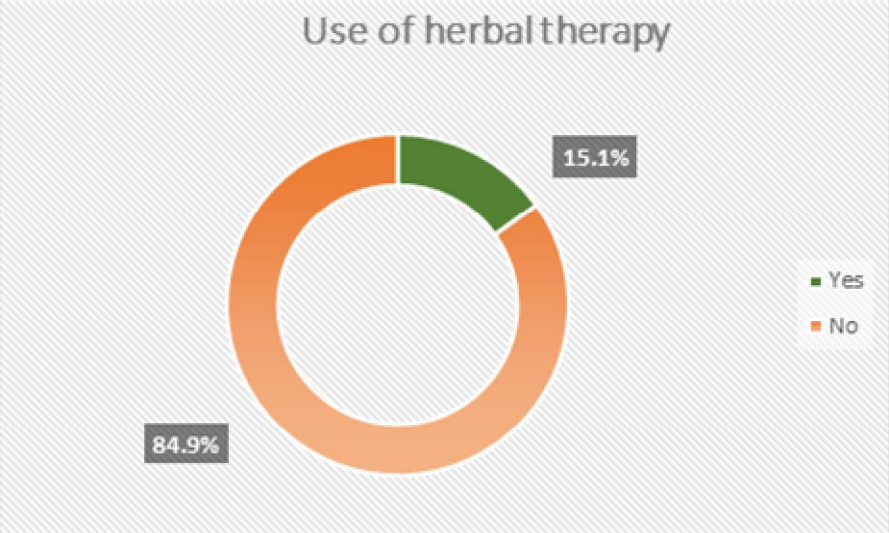



**Figure 2: Level of knowledge regarding herbal therapy uses among the studied older adults (n=218)**

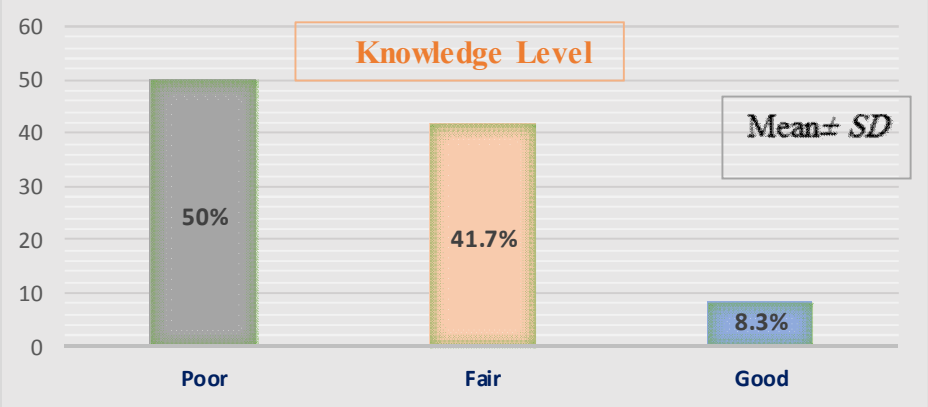


**Figure 3: Level of Attitude Toward Herbal Therapy uses Among the Studied Older Adults (n=218)**

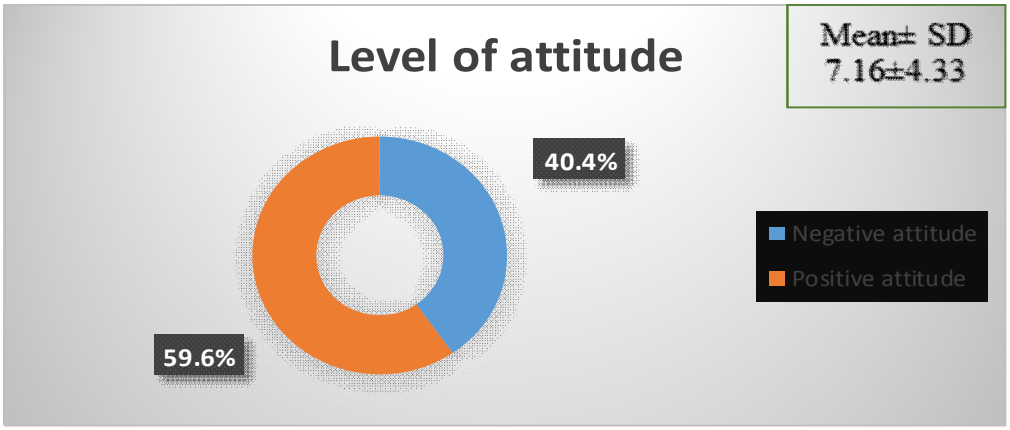


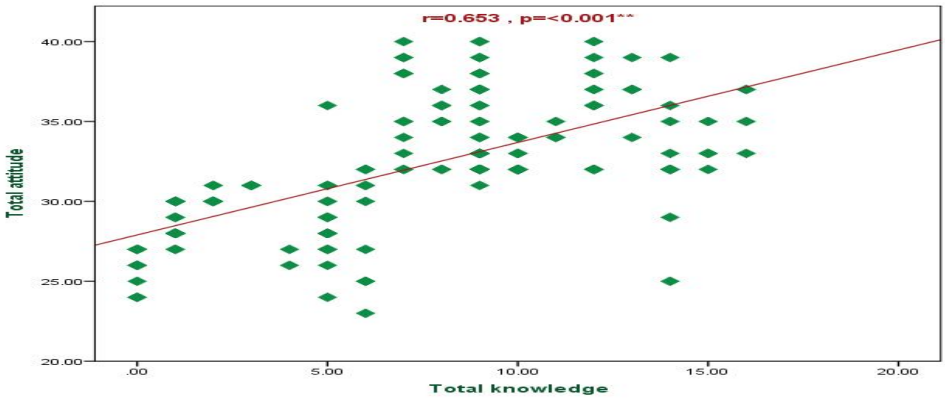

**Table 4: Relation Between Knowledge Regarding uses of Herbal Therapy and Characteristics of the Studied Older Adults (n=218)**

| Demographic and medical data | Knowledge level | | | | | | Test of significant | |
|---|---|---|---|---|---|---|---|---|
| | Poor (n=109) | | Moderate (n=91) | | Good (n=18) | | | |
| | no | % | no | % | no | % | $X^2$ | P |
| **Age (years)** | | | | | | | | |
| From 60 to less than 75 years | 98 | 48.5 | 87 | 43.1 | 17 | 8.4 | 2.458 | 0.293 |
| From 75 to less than 85 years | 11 | 68.8 | 4 | 25.0 | 1 | 6.3 | | |
| **Sex** | | | | | | | | |
| Male | 44 | 66.7 | 22 | 33.3 | 0 | 0,0 | 14.678 | 0.001** |
| Female | 65 | 42.8 | 69 | 45.4 | 18 | 11.8 | | |
| **Educational level** | | | | | | | | |
| Illiterate | 79 | 54.9 | 58 | 40.3 | 7 | 4.9 | 48.236 | <0.001** |
| Read and write | 17 | 42.5 | 22 | 55.0 | 1 | 2.5 | | |
| Secondary education | 13 | 41.9 | 11 | 35.5 | 7 | 22.6 | | |
| University education | 0 | 0.0 | 0 | 0.0 | 3 | 100.0 | | |
| **Residence** | | | | | | | | |
| Urban | 59 | 57.8 | 31 | 30.4 | 12 | 11.8 | 11.132 | 0.004** |
| Rural | 50 | 43.1 | 60 | 51.7 | 6 | 5.2 | | |
| **Monthly income** | | | | | | | | |
| Not enough | 85 | 48.6 | 74 | 42.3 | 16 | 9.1 | 1.268 | 0.530 |
| Enough | 24 | 55.8 | 17 | 39.5 | 2 | 4.7 | | |
| **Number of chronic diseases** | | | | | | | | |
| One disease | 54 | 51.9 | 42 | 40.4 | 8 | 7.7 | 19.090 | 0.001** |
| Two diseases | 49 | 58.3 | 32 | 38.1 | 3 | 3.6 | | |
| More than two diseases | 6 | 20.0 | 17 | 56.7 | 7 | 23.3 | | |
| **Number of medications** | | | | | | | | |
| Less than 5 medications | 97 | 54.8 | 70 | 39.5 | 10 | 5.6 | 13.175 | 0.001** |
| 5 medication and more | 12 | 29.3 | 21 | 51.2 | 8 | 19.5 | | |

**Table 5: Relation Between Attitude Toward Uses of Herbal Therapy and Characteristics of the Studied Older Adults (n=218)**

| Demographic and medical data | Attitude level | | | | Test of significant | |
|---|---|---|---|---|---|---|
| | Negative (n=88) | | Positive (n=130) | | | |
| | no | % | no | % | $X^2$ | P |
| **Age (years)** | | | | | | |
| From 60 to less than 75 years | 77 | 38.1 | 125 | 61.9 | 5.779 | 0.016* |
| From 75 to less than 85 years | 11 | 68.8 | 5 | 31.3 | | |
| **Sex** | | | | | | |
| Male | 38 | 57.6 | 28 | 42.4 | 11.645 | 0.001** |
| Female | 50 | 32.9 | 102 | 67.1 | | |
| **Educational level** | | | | | | |
| Illiterate | 65 | 45.1 | 79 | 54.9 | 5.268 | 0.153 |
| Read and write | 13 | 32.5 | 27 | 67.5 | | |
| Secondary education | 10 | 32.3 | 21 | 67.7 | | |
| University education | 0 | 0.0 | 3 | 100.0 | | |
| **Residence** | | | | | | |
| Rural | 36 | 31.0 | 80 | 69.0 | 8.970 | 0.003** |
| Urban | 52 | 51.0 | 50 | 49.0 | | |
| **Monthly income** | | | | | | |
| Enough | 23 | 53.5 | 20 | 46.5 | 3.831 | 0.05* |
| Not enough | 65 | 37.1 | 110 | 62.9 | | |
| **Number of chronic diseases** | | | | | | |
| One disease | 49 | 47.1 | 55 | 52.9 | 16.594 | <0.001** |
| Two diseases | 37 | 44.0 | 47 | 56.0 | | |
| More than two diseases | 2 | 6.7 | 28 | 93.3 | | |
| **Number of medications** | | | | | | |
| Less than 5 medications | 84 | 47.5 | 93 | 52.5 | 19.656 | <0.001** |
| 5 medication and more | 4 | 9.8 | 37 | 90.2 | | |

**Figure 4: Correlation Between total Knowledge and Attitudes Toward uses of Herbal Therapy of the Studied Older Adults (n=218)**




## Discussion

Many older adults with chronic illnesses use herbal therapies without consulting healthcare professionals. The older adults should be aware of adverse events of herbal therapy products (Ananchaisarp et al., 2021). In the light of recent advancement of complementary therapy and its effectiveness in the treatment of chronic diseases, the present study entailed to evaluate older adults'

knowledge level and attitudes toward uses of herbal therapy.

Demographic characteristics of the current study showed that most of the studied older adults were aged between 60 to less than 75 years old with a mean of 65.53±5.72 years. This may be justified by the physical ability of these age group (young old) that induce them for seeking health care regularly. This findings similar with a study result done in Malaysia by Wahab et al., (2021) who reported most of studied subjects were young old with a mean of 63.57±2.94 years. Also, the present study revealed most of the studied older adults were females. This findings owing to females are generally more prone to many health problems which motivate them for seeking treatments and follow up. This result supported by the findings of a study done in Saudi Arabia by Abdullah et al., (2020) who stated that most of studied subjects were females.

Concerning educational level, most of the studied older adults were illiterate. This can be attributed to the majority of the studied older adults were females and lived in rural area, as rural communities had limited access to education. This result on the same line with a study conducted in Saudi Arabia by Abdullah et al., (2020) who reported that most of the studied participants were illiterate. Also, the majority of the studied older adults had insufficient income and else depended on pension. This can be explained by the general economic situation of the country. This result agreed with a study held in Egypt by Khattab et al., (2018) who reported that most of the studied subjects didn't have enough income and depend on pension.

With increased life expectancy of older adults, the prevalence of presence one or more chronic diseases increasing with age (Martinez, et al., 2021). The current study results showed that all the studied older adults had at least one chronic disease. This may related to biological aging process and cumulative exposure to environmental toxins. This results on the same line with a study done in Iran by Koohestani et al., (2022) who mentioned that most of the studied participants had a history of more than one chronic disease.

Osteoarthritis is the most common musculoskeletal disease among older adults. (Atukorala & Hunter, 2023). The present study revealed nearly half of the studied users were used herbal therapy with osteoarthritis. This may be justified by many older adults may turn to herbal therapies owing to hopelessness with drugs and avoiding harmful effects of it on the body. This result on the same line of study done in Saudi Arabia by Al-yousef et al., (2019) who reported that most of studied subjects were used herbal therapy for treating joint pain.

Concerning reason of using herbal therapy, about three quarters of the studied users using herbal therapy owing to believing in its benefits and safety. This may be related to culture background of the Egyptian rural communities where herbal therapies were commonly used. Similar findings was found in a study performed in Thailand by Ananchaisarp et al., (2021), who reported the most influencing factor for using herbal among studied subjects was being the belief in success and safety of herbal therapies.

Herbal therapies are available in a variety forms as powders, tablets, capsules, pills, or solution (Hassen et al., 2022). The present study showed more than half of the studied users were consumed herbal therapy as beverage. This may be justified by individual preferences and easy preparation of drinkables herbal therapy. This results agreed with a study results done in Saudi Arabia by Al-yousef et al., (2019), which showed more than half of the studied subjects consumed herbal as beverage. This result disagreed with result of study held in Sadia Arabia by Alghadir et al., (2022) who reported most of studied subjects consumed herbal therapy in a form of capsules.

Concerning source of obtaining herbal therapy, the majority of the studied older adults were get herbal therapy through apothecary. This may attributed to easy accessibility and affordability. Similar findings was found in a study done in Lebanon by Assi et al., (2024), and a study done in Egypt by Fathy et al., (2018) who reported that most of the studied sample obtained herbal therapy through herbal stores. The current study showed that about half of the studied users didn't consult physician before using herbal therapy. This may be justified by limited consultation time, strict consultation protocol, and avoidance of physician negative/aggressive attitude regarding herbal therapy products. This result compatible with study done in Saudi Arabia by Albassam, (2024), who reported that most of the studied subjects didn't consult physician before using herbal therapy.

The current study revealed half of studied older adults had poor level of knowledge regarding herbal therapy use. This may be justified by decrease health awareness camping's/education programs across Egypt that may help in improving Egyptian public health literacy about herbal therapy. This result is supported by a studies done in Malaysia by Ashruf et al., (2024) who reported

that knowledge level of the studied subjects regarding herbal therapy was poor. Also, it was appeared that about two thirds of the studied older adults had a positive attitude toward using of herbal therapy. This may be attributed to dissatisfaction with drugs side effects and also the most Egyptian older adults believe in natural remedies, this can make herbal therapies more familiar and trusted compared to modern pharmaceuticals. This findings similar with a study performed in Untied Arabian Emirates by Aljawarneh et al., (2023) who reported that there was a positive attitude toward herbal therapy.

According to the relationship between herbal therapy knowledge level and the characteristics of the studied older adults, the study result showed a highly statistically significant relation was found between sex, educational level, residence, number of chronic diseases and number of medication and herbal therapy knowledge level of the studied older adults. This results supported with a study performed in Iraq by Taher et al., (2023), who reported that there was a statistically significant relation found between sex, education and herbal therapy knowledge level of the studied subjects. On the other side, a study done in Saudi Arabia by Abdelmola et al., (2021) contradicted with the present study, which reported that there no statistically significant relation between number of chronic diseases and herbal therapy knowledge level of the studied subjects.

According to the relationship between attitude level and the characteristics of the studied older adults regarding herbal therapy use, a statistically significant relation was found between the studied older adults age, sex, residence, income, number of chronic diseases and number of medications and attitude level. This result compatible with a study done in Indonesia by Izzati et al., (2021), who reported that there was a statistically significant relation between studied subjects age, sex, income, chronic diseases and their attitude level toward herbal therapy.

From the "knowledge-attitude-behavior" theory, knowledge positively affects the attitude toward the behavior (Ng et al., 2022). There was a highly statistically significant positive correlation found between level of knowledge and attitude level of the studied older adults toward herbal therapy use. This result is in accordance with a studies done in Untied Arabian Emirates by Aljawarneh et al., (2023), in Indonesia by Izzati et al., (2021), and in Malaysia by Arumugam et al., (2019) reported that there was a significant positive correlation between knowledge and attitude level regarding herbal therapy use.

**Conclusion**

Based on the findings of the present study, it can be concluded that there was poor knowledge level among the studied older adults regarding herbal therapy uses, while the attitudes toward herbal therapy was positive. There was also a highly statistically significant positive ccorrelation between total scores of knowledge and attitude of the studied older adults toward uses of herbal therapy. Interestingly, using of herbal therapy is not highly prevalent among older adults in spite of positive attitudes toward herbal therapy.

**Recommendations**

In view of the outcomes of this study, the following recommendations are proposed:

- Designing an educational health programs for older adults regarding benefits and risks of herbal therapy.
- Designing of health technology mobile apps regarding herbal therapy pros and cons for older adults.
- Planning of structured coordinated programs, training sessions, workshops and symposium for medical staff involved in geriatric care field regarding appropriate usage of herbal therapy.
- Spreading of herbal therapy appropriate use among older adults through a community health awareness campaigns and social media.
- Planning of national initiative for medical staff sector for integration of herbal therapy as alternative treatment strategy with traditional medicines.

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