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Evaluation of herbal product use and possible herb–drug interactions in Turkish elderly

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ABSTRACT

Objectives: To determine the prevalence and documentation of the use of herbal remedies by individuals aged ≥65 years and to evaluate possible adverse reactions and herb–drug interactions.
Method: Using a cross-sectional research design, data were collected from 1418 participants (age range 65–95 years) via interview-based questionnaires.
Results: The prevalence of herbal use among older adults was 30% (n = 426); 64% (n = 274) used more than one prescription medication, and polyherbacy was reported by 47.5% (n = 202) of participants. Some participants used herbal products that are known to interfere with conventional drugs used to treat chronic diseases, such as cardiac glycosides, diuretics, anticoagulants, antidiabetics, anticonvulsants, and monoamine oxidase inhibitors.
Conclusion: To ensure good patient care, it is important that healthcare professionals are aware of possible health complications associated with the concomitant use of herbs and medications.
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1. Introduction

Recent studies have shown that over the last two decades, the use of complementary and alternative medicine (CAM) has increased worldwide. Herbal therapy is the most common of the CAM therapies [1]. Herbal supplement use in the US increased from 2.5% in 1990 to 12.1% in 1997 to 18.6% in 2002 [2–4]. In addition, the prevalence of CAM therapies, including herbal therapy, has steadily increased over the last two decades in some European countries [5,6].

The World Health Organization reported that >80% of the global market relies on herbal medicinal products [7]. These products, defined as food or dietary supplements but not as pharmaceutical drugs, can be produced, sold, and marketed without first demonstrating safety and efficacy and can be obtained without a medical prescription required for pharmaceuticals. Medicinal herbs are also available in the market as raw plant material [8]. Both herbs and herbal products are usually used as self-care to enhance wellbeing and to prevent and cure non-life-threatening conditions. However, their use is also common in individuals with severe diseases, such as cancer, with a prevalence ranging from 54% to 78% in US [9].

Herbs and herbal products are usually thought to be safe because they are sourced from nature. Therefore, patients take a wide range of herbal health products either alone or in combination with conventional medicines. Because herbs contain multiple active ingredients, concomitant use of herbal products and prescription drugs may affect pharmacokinetic profiles and trigger untoward effects as a result of interactions [8,10]. It has been reported that 83% of female herbal health product users in UK [11] and 50% of the elderly patients in US [2] did not reveal their use of herbal products to their allopathic practitioners, and even when they did, physicians did not record that information on medical charts; the physicians themselves did not address this issue [2,11]. However, older adults are an especially vulnerable population. Physiological functions in the human body, such as renal and hepatic detoxification and clearance, usually decrease with age. Therefore, it is essential to understand the prevalence of herbal use

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in older adults [1,2,12,13].

A previous study found that >46% of Turkish older adults aged >65 years used 2–4 drugs per day, and 17% used 5 drugs per day [14]. Because conventional care was unavailable during their childhood, many older adults have lifelong experience with herbal medicines and other home remedies. The present study aimed to determine the prevalence of and attitudes toward herbal product use in adults aged ≥65 years. This is the first qualitative report investigating herbal product use in Turkish older adults. We also reviewed and reported the most prevalent herbal products used therapeutically by the elderly and discussed possible herb–drug interactions and adverse reactions.

2. Materials and methods

2.1. Data collection

In total, 1418 elderly from 12 provinces in different geographical regions of Turkey were included in the present study. The elderly who were admitted to the physical medicine and rehabilitation polyclinics of the medical schools or hospitals in each province were interviewed face-to-face by physicians. The questionnaire was administered during patient registration and data recording. The questionnaire comprised three sections: (i) participants' demographic characteristics, (ii) herbal product use, and (iii) conventional prescribed drug use. Demographic information included province, sex, age, marital status, level of education, retirement status, social insurance and income, place of residence, presence of ongoing diagnosed disease(s), and presence of continuously used herbal products.

The principles of the University Ethics Committee according to the Helsinki Declaration were followed during the entire study.

2.2. Statistical analysis

Statistical analyses were conducted with SPSS Version 20 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.). Province, sex, age, marital status, level of education, retirement status, social insurance, type of income, place of residence, presence of ongoing diagnosed disease(s), and presence of continuously used drugs were considered as the categorical independent variables, and herbal product use was treated as the dependent variable. The categorical variable distributions were examined with frequency tables and multiple response tables. Chi-squared tests were conducted to examine the relationships between the categorical independent variables and the dependent variable. A sample size of 1418 achieved 99% power to detect an effect size of 0.218, using 11° of freedom with a significance level of 0.05.

3. Results

3.1. Characteristics of the study population

Participants' demographic characteristics and their reported herbal product use are presented in Table 1. Of participants, 67.4% were female and 32.6% were male. We found a sex-based statistically significant difference in the continuous use of herbs, with the percentage of women (33.1%) who reported continuous use of herbal products significantly higher than that of men (23.8%) ($p < 0.001$). We divided participants into age-based subgroups: 65–69 years, 70–74 years, and ≥75 years. We found that 30.7% of those aged 65–69 years, 29.7% of those aged 70–74 years, and 29.2% of those aged ≥75 continuously used herbal products. Use of herbal products slowly decreased as age increased; however, this correlation was not significant ($p = 0.876$). Herbal products were used as therapy by 50.0% of single participants, 28.6% of married participants, 31.3% of widowed participants, and 43.8% of divorced participants. However, there was no significant correlation between marital status and herbal product use ($p = 0.091$). There was a significant difference between herbal product use and education level ($p = 0.024$).

We found no statistically significant associations between herbal product use and retirement status ($p = 0.136$), presence of social security ($p = 0.943$), living situation, ($p = 0.442$), or income ($p = 0.350$). However, 27.6% of the participants without any income and 30.6% of those with a regular income used herbal products for therapy. Herbal product use was slightly higher in participants who suffered from ongoing health problems (31.1%) than in healthy older adults (24.9%), but this difference was not significant ($p = 0.086$). However, herbal product use was significantly higher in participants who reported continuous drug use (31.2%) than those who did not use any drugs (24.9%) ($p = 0.045$). Herbal products were used most frequently in Antalya (44.4%), Kocaeli (42.2%), Izmir (40.4%), and Samsun (40.4%), which are coastal cosmopolitan cities. Therapeutic use of herbal products was less common in Ankara (18.6%) and Diyarbakir (19.7%), which are located inland. Our analyses showed a significant difference in herbal product use between the cities ($p < 0.001$).

3.2. Prevalence of herbal product use and products commonly used by older adults

In total, 30% of the participating older adults (n = 426) reported benefitting from herbal therapy at least once. Participants used 96 different types of natural products, 92 of which were herbal. The most frequently used herbal products are presented in Table 2.

3.3. Source of recommendations about herbal product use and purchasing

As shown in Table 3, the primary information sources about herbal products were neighbors (25.8%) and relatives (25.8%), followed by friends (21.6%), and influence from herbal product shops (21.1%). Approximately 5.2% of older adults used the media as a source of information. Interestingly, only 4.7% of participants indicated that they obtained information about herbal products from pharmacists.

3.4. Polyherbacy, polypharmacy, and concomitant use of herbs and other prescribed medications

The prevalence of polypharmacy and polyherbacy in older adults who used herbal products were 64.3% and 47.5%, respectively (Table 3). In addition, 63.3% of older adults who used herbs always or sometimes used herbal products concomitantly with prescribed medications, whereas only 26.3% reported no concurrent use. Approximately 11.9% of participants indicated that they always reported their herbal use to their physician; however, 42.2% believed that herbal products were not harmful and they did not need to discuss these with their healthcare providers. Approximately 39.7% of participants declared that they would disclose herbal product use to their healthcare providers if asked, and 2.8% would disclose their use of herbs if they had a problem.

Table 4 presents the prescribed and regularly used medications reported by participants. The most commonly used medications were related to the cardiovascular system (32.3%), digestive system and metabolism (21.0%), musculoskeletal system (11.9%), nervous system (11.9%), and haematopoietic diseases (10.7%).

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