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IMPACT OF DEMOGRAPHIC CHARACTERISTICS OF THE LOCAL POPULATION OF THE NORTHERN BLACK SEA COAST ON THE USE OF MEDICINAL PLANTS

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Abstract. The present study aims to examine the impact of demographic indicators gender, age, education and place of residence on the use of medicinal plants by the native population of the Northern Black Sea coast. The survey was conducted in eleven cities and nine villages between April and June 2015. The face-to-face interview technique was used and the respondents were randomly selected. The impact of demographic indicators on the respondents' answers was assessed by calculating the correlation coefficient of Pearson (r). The results show that the majority of respondents (83.78%) used medicinal plants mainly for treatment and prevention of diseases, approximately half of them (45.95%) used them for nutrition. Respondents using medicinal plants for decoration and for business have an insignificant share (9.73% and 1.08%, respectively). From the demographic analysis of the results, a moderate influence of all four demographic indicators on the respondents' answers was registered. The analysis of cross-links revealed that the attitude to the use of medicinal plants by women, unlike men, was not significantly influenced by age. The share of respondents from rural areas using medicinal plants for treatment and prevention of diseases was equal to those using them for nutrition, while the respondents from the cities using medicinal plants for treatment and prevention were twice more than those using them for nutrition. Regional differences were discovered comparing our data for use of medicinal plants of the local population with published data from the inland of the country.

Keywords: biodiversity, ethnobotany, face-to-face interview technique

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INTRODUCTION

Lifestyle and traditions of Bulgarians are closely bound to medicinal plants. For centuries medicinal plants have been used for healing, food, decoration and other purposes, and are firmly entangled in Bulgarian customs and rituals.

The area of the Northern Black Sea coast is characterized by a rich and diverse flora including a large variety of medicinal plants - 593 species (ZAHARIEV ET AL. 2016). The available literature lacks a detailed ethnobotanical study on the traditional knowledge of medicinal plants and their uses in this area.

The present study is part of more extensive and detailed ethnobotanical study of traditional knowledge of medicinal plants and their use carried out in the North Black Sea coast area and aims to present the impact of demographic indicators gender, age, education and place of residence on different uses of medicinal plants by the local population.

MATERIALS AND METHODS

The survey was conducted in the period April - June 2015 in eleven cities and nine villages along the North Black Sea coast, using face-to-face interview technique commonly applied in such studies (AKAYDIN ET AL. 2013; PLOETZ & ORR 2004). Interviewees were a random sampling of the local population with dissimilar demographic profile.

In order to check the purposes medicinal plants are used for, we asked the following question: *What do you use medicinal plants for?* In order to render an account of the demographic profile on responses, we mustered information on gender, age, education and residence of respondents.

The statistical significance of standard deviation of experimental data compared to the theoretically expected ones was analyzed by the χ^2 method (VALTCHEV & IORDANOVA 2004; DRAGOEVA ET AL. 2015).

Pearson's coefficient (r) was used for assessment of the impact of various demographic indicators on respondents' answers.

RESULTS AND DISCUSSIONS

The majority of the respondents (83.78%) use medicinal plants mainly for treatment. Approximately half of the respondents use them for food - 45.95%. The rest of the applications have a limited share, with a minor exception of 9.73 % using them for decoration. The total amount of percentage exceeds 100 as 38.38 % of the respondents have given more than one answer. The small relative share of interviewees who declare that they use medicinal plants for business (1.08%), demonstrates that along the Black Sea coast herb gathering is not popular yet as a method of income generating.

A similar use of medicinal plants is reported in other studies (PLOETZ 2000; BELE & KHALE 2011; KOŽUHAROVA ET AL. 2013; DRAGOEVA ET AL. 2015), with our data correlating to the results published for the countryside where the highest percentage of the population uses medicinal plants for treatment, followed by their application as food, decoration and other purposes. It is noteworthy that the percentage of respondents using medicinal plants for treatment and food is relatively higher in our study, compared to data reported by PLOETZ (2000) and DRAGOEVA ET AL. (2015).

Regional differences reveal that the North Black Sea coast population is oriented mainly towards the use of medicinal plants for treatment and food, much less for other purposes.

Demographic analysis displayed moderate impact of all four indicators on respondents' answers (**Table 1**).

Table 1. Impact of demographic characteristics on respondents' answers to the question *What do you use medicinal plants for?* Abbreviations: P – Statistical significance of deviation between expected and theoretical results; $P \leq 0.05$ - statistically significant, $P > 0.05$ - statistically non-significant; r - Pearson's coefficient; $0 < r < 0.3$ – minor impact, $0.3 < r < 0.5$ - moderate impact, $0.5 < r < 0.7$ - significant impact.

Demographic characteristics							
Gender		Age		Education		Residence	
P	r	P	r	P	r	P	r
$P \leq 0,05$	$r = 0,56$	$P \leq 0,05$	$r = 0,51$	$P \leq 0,05$	$r = 0,50$	$P \leq 0,05$	$r = 0,59$

Impact of the demographic characteristics gender and age

The cross-link analysis of gender and age reveals that the highest percentage of men using medicinal plants primarily for treatment are respondents of the age groups of 31 to 40 years of age and over 51 years old. For the same age groups, the percentage of interviewees using medicinal plants for food is twice as low. However, with the young generation in the picture, the situation is slightly different: the share of male interviewees 20-30 years of age using medicinal plants for food exceeds the share of those using them for treatment (**Fig. 1**).

Distribution of women using medicinal plants for treatment by age categories is approximately the same. The situation is similar for those using medicinal plants for food (**Fig. 2**).

Analysis reveals that women's attitudes towards medicinal plants and their uses, unlike for men, are not significantly influenced by age.

Impact of the demo-graphic characteristic education

The share of inter-viewees using medicinal plants for treatment, along with the share of those using them for food, is roughly the same regardless of education. In both cases,

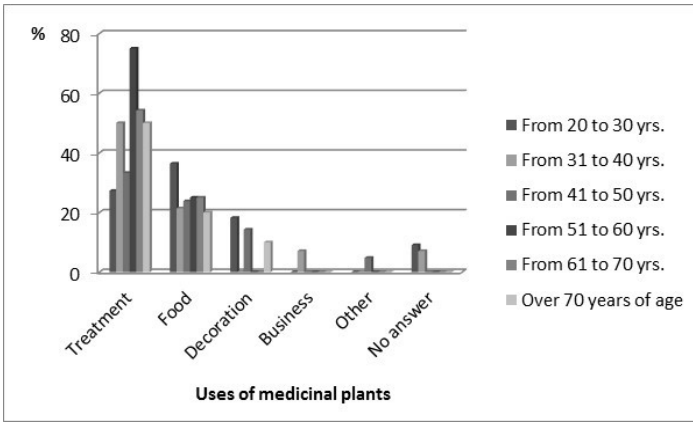


Fig. 1. Cross-links between the age of men and their answers.

this is a relatively high share which demonstrates a steady positive attitude towards the use of medicinal plants. Most likely, the level of awareness is not based on education but rather disseminated through families, not school.

Impact of the demographic characteristic residence

In rural areas, medicinal plants are used mostly for food and treatment, with the share of the two groups of respondents being the same – 70%. Urban respondents bring a different picture with the share of those using medicinal plants for treatment being twice higher (85.45%) than the share of those using them for food (43.03%). (Fig. 3).

The above data are more likely due to the fact that rural population is closer to the natural habitat of medicinal plants which makes them easily available and in sufficient quantity. Besides, they have the option of growing their own medicinal plants in the gardens.

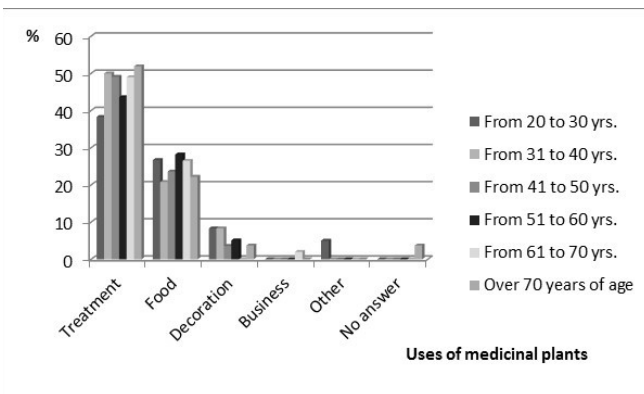


Fig. 2. Cross-links between the age of women and their answers.

CONCLUSION

The results of the survey reveal that the North Black Sea coast population is oriented mainly towards the use of medicinal plants for treatment and food, much less utilizing them for other purposes, such as decoration, business, etc.

The four analysed demographic indicators

have a moderate impact on the use of medicinal plants by the local population. In women, unlike men, the attitudes towards the use of medicinal plants are not significantly influenced by age. Rural respondents display same shares of usage of medicinal plants for treatment and food, while the share of urban respondents using medicinal plants for treatment is twice higher than those using them for food.

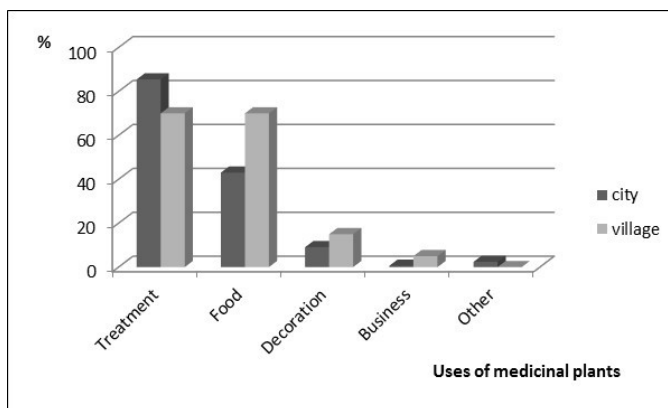


Fig. 3. Impact of residence as a demographic characteristic on respondents' answers

Comparing our data to similar surveys of the hinterland, regional differences have been observed in the uses of medicinal plants by the local population of the surveyed area.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this article.

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