

Pharmacists' attitudes to dispensing food supplements to chronically ill patients: a pilot survey among community pharmacies in Bulgaria

Antoaneta Balkanska-Mitkova¹, Antoniya Yaneva², Magdalena Kondeva-Burdina¹, Maria Dimitrova²

¹ Department „Pharmacology, Pharmacotherapy and Toxicology“, Faculty of Pharmacy, Medical University of Sofia, Sofia, Bulgaria

² Department “Organization and Economics of Pharmacy“, Faculty of Pharmacy, Medical University of Sofia, Sofia, Bulgaria

Corresponding author: Antoaneta Balkanska-Mitkova (chairperson.epsaac19@gmail.com)

Received 19 April 2022 ♦ Accepted 25 May 2022 ♦ Published 5 July 2022

Citation: Balkanska-Mitkova A, Yaneva A, Kondeva-Burdina M, Dimitrova M (2022) Pharmacists' attitudes to dispensing food supplements to chronically ill patients: a pilot survey among community pharmacies in Bulgaria. *Pharmacia* 69(3): 589–593. <https://doi.org/10.3897/pharmacia.69.e85471>

Abstract

Background: Within the last years, excessive utilization of food supplements for prevention and prophylaxis in different chronic diseases is observed. In order to extend the control on the arrangement of the market, utilization, and safety of food supplements, the European Commission took genuine regulatory steps to harmonize the criteria for FS and to guarantee that they are not giving deceiving information. However, excessive use, uncontrolled patients consumption, exposure to higher than recommended intakes, and even interaction with specific medicines can cause toxicity risks and pose serious health concerns. The aim of this study is to examine the tendency of pharmacists to correctly recommend food supplements to chronically ill patients in order to extend the pharmaceutical care and prevent side effects.

Materials and methods: The used method is an anonymous survey that was conducted by using the direct questionnaire method among master pharmacists and assistant pharmacists working in community pharmacies in Bulgaria.

Results: The results show that the majority of the pharmacists are willing to recommend food supplements and that they could participate in the monitoring of chronically ill patients with food supplements intake. On the other side, the survey shows that most of the patients are seeking for food supplements and do ask for advice.

Conclusion: In conclusion, pharmacists as the most accessible health care professionals can provide more detailed information concerning food supplements in order to avoid negative effects on the safety of chronically ill patients, especially with additional training in the field.

Keywords

pharmacists, food supplements, interactions, knowledge, risk

Introduction

Food supplements (FS) placed on the market in a European Union (EU) Member State must comply with all

relevant aspects of EU Food Law, ISO certification, and any specific national legislation of EU Member States with regard to their composition, manufacture, and control (Petkova et al. 2019; GMP 2021).

In the recent years an excessive use of food supplements as prevention and prophylaxis in different chronic diseases is observed. In order to increase the control on the placement on the market, utilization, and safety of food supplements, the European Commission took serious regulatory steps to harmonize the criteria for FS and to ensure that they are not provided with misleading information. A harmonized list of vitamins and minerals that may be added for nutritional purposes in FS and their doses was introduced with Directive 2002/46/EC and Directive 2006/37/EC/. Regulation (EC) No 1924/2006 established the rules for clear, accurate, and scientific evidence-based health claims of FS (EC 2006).

However, excessive use, uncontrolled consumption, or exposure to higher than recommended intakes and even interaction with specific medicines can cause toxicity risk and pose serious health concerns (Korfali et al. 2013).

As the most accessible health care professionals, pharmacists routinely encounter patients seeking advice on various food supplements in their daily practice (Bukic et al. 2021). Pharmacists can be a valuable source of reliable and independent information on the effects and safety of food supplement use for a variety of health conditions, but a sufficient number of surveys shows that additional training is required (Marupuru et al. 2019; Mazzilis et al. 2021).

Studies also show that pharmacists would like to receive more detailed information on the quality of food supplements, interactions with medicines, and adverse effects related to their intake. Pharmacists also need more training and knowledge related to food supplements, especially regarding more specific pharmaceutical information, but a national policy in this area needs to be developed not only on a national but on a regional level, as well (Stoimenova et al. 2010).

This prompted our interest to examine the pharmacists' attitudes working in community pharmacies in Bulgaria to dispensing and controlling food supplements to chronically ill patients.

Methods and materials

A national anonymous survey was conducted using the direct questionnaire method among master pharmacists and assistant pharmacists working in community pharmacies in Bulgaria to assess their attitudes towards the dispensing and monitoring of food supplements in patients with chronic diseases. The questionnaire was prepared by the PhD student under the supervision and review of Maria Dimitrova. Pharmacists from 13 major cities were surveyed between June 2020 and June 2021. The point was to collect different answers from different parts of the country in order to analyze the behavior of the pharmacists in the community pharmacies in Bulgaria. In the beginning, the questionnaire was directly provided by the PhD candidate to the working pharmacists (in the pharmacies) and later on when the COVID-19 pandemic was seriously ongoing the questionnaire was provided online via google forms. The asked pharmacists and assistant pharmacists

were selected from chain pharmacies and small pharmacies in order to have a full overview. The questionnaire consisted of 8 closed-ended and 2 opened-ended questions and aimed to collect data on the demographic characteristics of pharmacists (age, sex, location of workplace), as well as their attitudes regarding the role they might have and the knowledge they need to advise patients on food supplements, the risks associated with their use and the reporting of adverse effects by patients.

Data was proceeded through descriptive statistics on XL-STAT and Chi-Square test and cross tables for correlation.

Results

Demographic characteristics

The duration of the survey is 12 months (from June 2020 to June 2021). The survey included 151 pharmacists (135 Master pharmacists and 16 Assistant pharmacists) from 13 regional cities in the country (Sofia, Plovdiv, Pazardzhik, Blagoevgrad, Yambol, Haskovo, Veliko Tarnovo, Ruse, Stara Zagora, Pleven, Kyustendil, Varna and Burgas).

The demographic data of the surveyed healthcare professionals are summarized in the following table:

Table 1. Demographic characteristics.

Input data	Value
Qualification	
Master Pharmacists	135
Assistant Pharmacists	16
Gender	
Male	38
Female	111
No information	2
Age	
18–24	29
25–44	94
45–65	24
>65	4

Pharmacists' perspective towards food supplements dispensing and associated risks

128 of 151 (84%) of the pharmacists surveyed were willing to recommend food supplements. 113 (88%) of these were master pharmacists. 81% of men and 86% of women respectively recommend the use of food supplements. The majority of the pharmacists (89%) respond that pharmacists could participate in the supervision chronically ill patients and food supplements intake - Table 2.

Patients' attitudes towards food supplements

The results from the survey show that 139 (92%) of the respondents say that patients often seek for food supplements in the pharmacies and 132 say that patients do ask

Table 2. Pharmacists` perspective towards food supplements dispensing and associated risks.

Input data	Value (n/%)
As a Master Pharmacist/Assistant Pharmacist, would you recommend the usage of food supplements?	
Yes	128 (84%)
No	23 (16%)
Do you inform patients about possible side effects of taking food supplements, especially in combination with medicines?	
Yes	145 (96%)
No	6 (4%)
Do you think the Pharmacist/Assistant pharmacist can supervise the intake of food supplements when it comes to chronically ill patients?	
Yes	134 (89%)
No	17 (11%)

for advice about food supplements and over-the-counter medicines. However, according to 84 respondents patients do not report side effects related to food supplements intake – Table 3. A further study will be conducted in order to observe the chronically ill patients, the taken medications and food supplements and the appeared side effects.

Table 3. Patients` attitudes towards food supplements.

Input data	Value (n)
Do patients often look for food supplements?	
Yes	139
No	12
Do patients ask for advice about food supplements and OTC drugs?	
Yes	132
No	19
Do patients report any side effects from food supplements?	
Yes	67
No	84

Approximately 1/5 of the professionals surveyed did not express an opinion on the benefit of including a pharmacist in the monitoring process. This may be due to the fact that they do not realize what their role actually is as an active part in the relationship with patients. Another

point of view may be the insufficient awareness of the benefits of the proposed food supplements and the possible adverse interactions that may occur in chronically ill patients using both OTC products and medicines from different groups.

The smallest percentage of respondents reported that they would not recommend food supplements to patients and would not participate in counseling. These professionals believe that nutritional supplements are used as a means to increase turnover and have no real therapeutic effect.

Most of the master pharmacists and assistant pharmacists were of the opinion that their role in the monitoring process could be significant and refers to:

- ability to prevent adverse interactions;
- providing pharmaceutical care and better adherence;
- achieving better therapy outcomes;
- rational medication use;
- prevention of overdose;
- bringing more clarity to the patient, etc.

It is clear from the survey that the majority of professionals who expressed an opinion are competent and able to counsel patients and prescribe supplements.

Statistical analysis

For the inclusion of a pharmacist as an active part in chronic disease management, the data show that 84% of men would support it, with a higher percentage for women at 90%. By testing for a correlation between gender and agreement to include a pharmacist with Chi-squared test, the existence of a possible correlation was rejected. Indicated in the figure below.

Figure 1 shows that 84% of males and 90% of females are willing to participate in chronic disease management and the supervision of prescribing and recommending food supplements in order to avoid side effects.

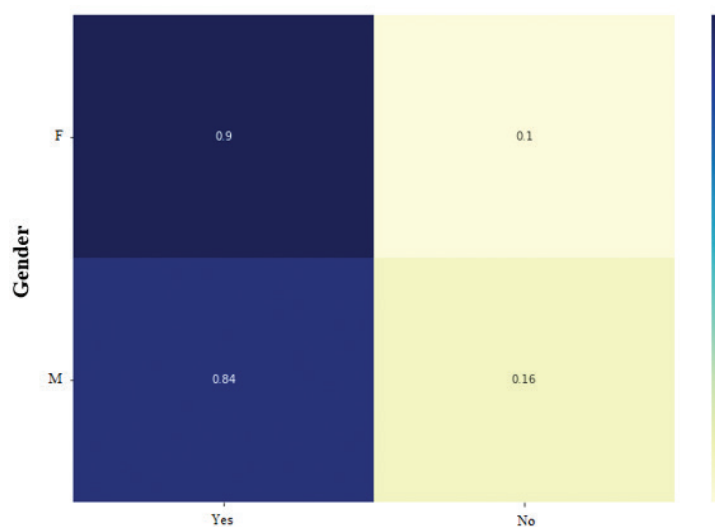


Figure 1. Relationship between gender and pharmacist willingness to participate in chronic disease management.

All the results calculated with Chi-squared test could not generalize conclusions due to the small group of testing, but are sufficient to express a tendency of the analyzed amount of pharmacist. The age of pharmacists did not influence the awareness of adverse events and the provided information to the patients. It is striking that the oldest pharmacists and assistant pharmacists are less likely to provide information to their patients about adverse events, but this statement cannot be supported by a statistical test of dependence due to the small number of pharmacists in this age group available in the data.

The attitudes towards recommending food supplements showed the largest difference between the youngest age group (18–24 years) and the oldest pharmacists (over 65 years), 90% and 75% would recommend FS respectively. With other words, 90% of the youngest age and 75% of the oldest pharmacists would recommend the usage of FS. The difference cannot be generalized due to the small number of pharmacists in the latter age group.

The oldest of the pharmacists surveyed categorically refused to participate in chronic disease management, which can be related to the fact that currently the pharmaceutical care in Bulgaria is not paid. On the other hand, pharmacists in the second age group (25–44 years) were the most willing to supervise the intake of food supplements.

Patients would prefer to be consulted by their pharmacist for FS in 93% of cases. While those who do not want to be consulted by their pharmacist are 84%. Pharmacists inform the patients for adverse events in 46% of those who inquired about OTC and/or food supplements and 32% of those who did not inquire, respectively. In both cases, the difference in the percentages could not be confirmed by a statistical test for dependence on the variables.

Discussion

In recent years an excessive use of food supplements for prevention, prophylaxis, and treatment of different chronic diseases is observed. In order to increase the control on the placement on the market, utilization, and safety of food supplements, the European Commission took serious regulatory steps to harmonize the criteria for food supplements and to ensure that they are not provided with misleading information. A harmonized list of vitamins and minerals that may be added for nutritional purposes in food supplements and their doses was introduced with Directive 2002/46/EC and Directive 2006/37/EC/. Regulation (EC) No 1924/2006 established the rules for clear, accurate, and scientific evidence-based health claims of food supplements (EC 2019).

References

Al-Jazairi AS, Alharbi R (2017) Assessment of evidence-based practice among hospital pharmacists in Saudi Arabia: Attitude, awareness, and practice. *International Journal of Clinical Pharmacy* 39(4): 712–721. <https://doi.org/10.1007/s11096-017-0430-x>

Recent analyses of the Bulgarian pharmaceutical market show an increasing trend in the number of food supplements available on the pharmaceutical market in Bulgaria which almost reach the market of the over-the-counter medicines (Balkanska et al. 2019).

Our results are in line with other published articles. Pharmacists need more training and knowledge related to food supplements, as well as patients which are unable to distinguish OTC medication and food supplements. A national policy in this area needs to be developed on national and regional level. (Stoimenova et al. 2010).

In 2021 Bukic et al. performed a cross-sectional study in Croatia to explore the community pharmacists' perception and knowledge on dietary supplements. The results showed that they needed further education about the practice of evidence-based pharmacy, especially on safety.

Similar studies have been performed in multiple countries worldwide – Australia, Ethiopia, Germany, Malaysia, New Zealand, Saudi Arabia, United Arab Emirates, and the USA, focusing on the need to identify different barriers to pharmacists to adapt their professional responsibilities in terms of supporting the appropriate and safe use of food supplements. Most of the researchers find a substantial gap between public awareness of the safe and effective use of food supplements and the role of the pharmacists as trusted consulters. They also call for more detailed implementation of the professional competencies of pharmacists as accessible health care professionals but also find the need to encourage further specialization on the effective and safe use of food supplements (Fahmi et al. 2010; Al-Jazairi and Alharbi 2017; Tan and Hatah 2017; Welz and al. 2018; Emiru et al. 2019; Ung et al. 2019; Barnes and Butler 2020; Clayton et al. 2020).

Conclusions

Rigorous monitoring and risk assessment of food supplements-drug interactions in patients with chronic diseases is needed, as well as prior implementation of additional education and training and pharmaceutical care in the community pharmacies. The pharmacists, as the most accessible health care professionals, are willing to participate and be implemented in the pharmaceutical care related to the food supplements intake. In combination with different medications, food supplements can cause many side effects, which can be prevented with a carefully provided consultation.

It would also be advisable to introduce a tightened mechanism of registration and regulation of food supplements in Bulgaria in order to minimize drug interactions and adverse events in their future use.

Balkanska A, Dimitrova M, Kondeva M (2019) Food supplements for maintenance of normal liver function on the Bulgarian pharmaceutical market – compliance with the European recommendations for health claims, market trends and possible interactions with

- medicines for liver diseases. VIIth Congress of Pharmacy with International Participation, Borovets, Bulgaria.
- Barnes J, Butler R (2020) Community pharmacists' professional practices for complementary medicines: a qualitative study in New Zealand. *International Journal of Clinical Pharmacy* 42(4): 1109–1117. <https://doi.org/10.1007/s11096-020-01093-2>
- Bukic J, Kuzmanic B, Rusic D, Portolan M, Mihanovic A, Seselja Perisin A, Leskur D, Petric A, Bozic J, Tomic S, Modun D (2021) Community pharmacist' use, perception and knowledge on dietary supplements: a cross sections study. *Pharmacy Practice (Granada)* 19(1): 2251. <https://dx.doi.org/10.18549/pharmpract.2021.1.2251>
- Clayton K, Luxford Y, Colaci J, Hasan M, Miltiadou R, Novikova D, Vlahopoulos D, Stupans I (2020) Community pharmacists' recommendations for natural products for stress in Melbourne, Australia: a simulated patient study. *Journal of Pharmacy Practice (Granada)* 18(1): e1660. <https://doi.org/10.18549/pharmpract.2020.1.1660>
- Emiru YK, Belay YB, Bizuneh GK, Tegegn HG (2019) Community pharmacists' knowledge, attitude, and professional practice behaviors towards dietary supplements: results from multi-center survey in Ethiopia. *Nutrition Diet Supply* (2019)11: 59–68. <https://doi.org/10.2147/NDS.S222114>
- EC [European Commission] (2006) Union rules on nutrition and health claims have been established by Regulation (EC) No 1924/2006 (2007) Union rules on nutrition and health claims have been established by Regulation (EC) No 1924/2006. https://ec.europa.eu/food/safety/labelling_nutrition/claims_en
- EC [European Commission] (2019) European Commission. https://ec.europa.eu/food/safety/labelling_nutrition/claims_en
- Fahmy SA, Abdu S, Abuelkhair M (2010) Pharmacists' attitude, perceptions and knowledge towards the use of herbal products in Abu Dhabi, United Arab Emirates. *Pharmacy Practice (Granada)* 8(2): 109–115. <https://doi.org/10.4321/s1886-36552010000200005>
- Food Supplements Europe Guide to Good Manufacturing Practice for Manufacturers of Food Supplements (2021) Food Supplements Europe Guide to Good Manufacturing Practice for Manufacturers of Food Supplements. <https://foodsupplementseurope.org/wp-content/themes/fse-theme/documents/publications-and-guidelines/good-manufacturing-practice-for-manufacturers-of-food-supplements.pdf>
- Korfali SI, Hawi T, Mroueh M (2013) Evaluation of heavy metals content in food supplements in Lebanon. *Chemistry Central Journal* (2013): e10. <https://doi.org/10.1186/1752-153X-7-10>
- Marupuru S, Axon DR, Slack MK (2019) How do pharmacists use and recommend vitamins, minerals, herbals and other food supplements? *BMC Complementary and Alternative Medicine* (2019): e229. <https://doi.org/10.1186/s12906-019-2637-y>
- Mazzilis G, D' Angelo M, Brunelly L, Colautti L, Cojutti P, Arnoldo L, Parpinel M (2021) Food supplements consumption and the role of pharmacies: a north-eastern Italy observational study. *European Journal of Public Health* (31): e3. <https://doi.org/10.1093/eurpub/ckab165.287>
- Petkova-Gueorguieva E, Getov I, Ivanov K, Ivanova S, Gueorguiev S, Getova V, Mihaylova A, Madzharov V, Staynova R (2019) Regulatory requirements for food supplements in the European Union and Bulgaria. *Folia Medica (Plovdiv)* 61(10): 41–48. <https://doi.org/10.2478/folmed-2018-0032>
- Stoimenova A, Manova M, Savova A, Kundurzhev T, Stoycheva M, Petrova G, Dimitrova M (2010) Educational project on food supplements for community pharmacists. *Acta Medica Bulgarica* 37(2): 51–57.
- Tan SY, Hatah E (2017) Knowledge, attitudes, practices, and barriers related to research utilization: a survey among pharmacists in Malaysia. *International Journal of Clinical Pharmacy* 39(2): 450–458. <https://doi.org/10.1007/s11096-017-0425-7>
- Ung COL, Harnett JE, Hu H, Desselle SP (2019) Barriers to pharmacists adopting professional responsibilities that support the appropriate and safe use of dietary supplements in the United States: Perspectives of key stakeholders. *American Journal of Health-System Pharmacy* 76(13): 980–990. <https://doi.org/10.1093/ajhp/zxz079>
- Welz AN, Emberger-Klein A, Menrad K (2018) Why people use herbal medicine: insights from a focus-group study in Germany. *BMC Complementary and Alternative Medicine* 18(1): e92. <https://doi.org/10.1186/s12906-018-2160-6>