

Original Research Article

Doctors' point of view on Pharmacy Compounding - Advantages and disadvantages

Anna Todorova^{1*}, Viliana Gugleva¹, Lora Georgieva²

¹Faculty of Pharmacy, Medical University-Varna, Bulgaria

²Faculty of Public Health, Medical University-Varna, Bulgaria

*Corresponding author email: annitodorova@abv.bg

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Abstract

Background: Despite the wide variety and the increasing number of industrially manufactured pharmaceuticals in recent years, extemporaneous medications are still often prescribed and prepared.

Materials and methods: The purpose of this study was to analyze doctors' points of view on pharmacy compounding and to characterize advantages and disadvantages, associated with extemporaneous prescribing and dispensing. We performed a direct anonymous survey among general practitioners and medical specialists in the Northeastern Bulgaria.

Results: Our study findings showed that extemporaneous medications are still preferred by physicians to meet the need of a tailored approach to specific patient and to provide individualized drug dosing. The role of extemporaneous compounded medicines is significant in the field of dermatology, due to the possibility of combining different ingredients in order to achieve better therapeutic action and also to serve as an alternative when there are no available market preparations.

Conclusion: The prescribing and compounding drugs is a possibility for ensuring optimal therapeutical success in a certain patient. The advantages of extemporaneous medicines define their important role in the personalized therapeutic approach. The question about the perspectives and the future of compounded drugs is complex and depends not only on the number of prescribed prescriptions, but also on the pharmacists' willingness to dispense them, becoming equivalent partners of doctors in general treatment process.

Key words

Extemporaneous preparations, Advantages, Disadvantages, Physicians, Attitudes.

Introduction

Pharmacy compounding is a process which involves preliminary preparation, mixing, assembling, homogenization, packaging, and labeling of a drug in accordance with a licensed practitioner's prescription to fit the unique need of a patient [1].

In a brief historical retrospect, the development of drugs prepared extempore can be traced back to the ancient civilizations in Greece, Rome, Egypt, the Arabian Peninsula, where people used to mix different oils from plants and animals as well as minerals creating drugs with a certain therapeutic effect. Famous scientists such as Galen, Dioscorides, and Celsus combine their medical knowledge and their rich experience in order to write works which are fundamental to the development of pharmacy and medicine. Until the Industrial Revolution in the 19th century almost all drugs were compounded [2].

Nowadays pharmacists not only compound and prescribe medical goods but they have evolved to be doctor advisors and very approachable pharmaceutical specialists in public health. Regardless of the big variety of industrially produced medicines, extemporaneous drugs still have their place in the general therapeutical process and doctors continue to prescribe and

recommend them. In many cases the ability for an individual approach to patient care determines the type of treatment. Extemporaneous drugs therapy has its undeniable advantages but unfortunately few doctors prescribe them and only some pharmacies in Bulgaria offer this service.

Purpose of study was research on doctors' points of view on pharmacy compounding and extemporaneous therapy.

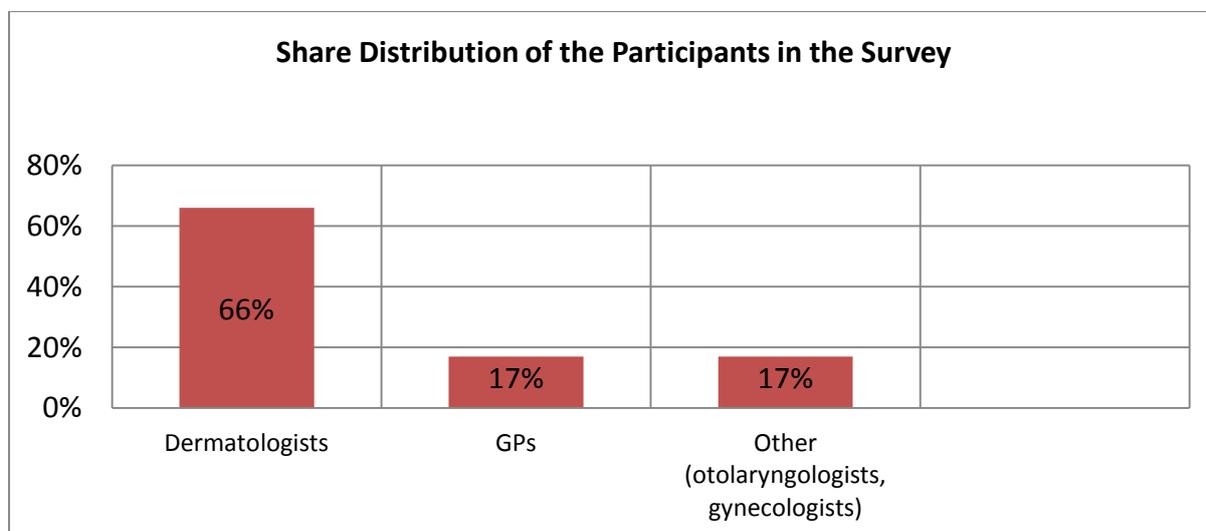
Material and methods

An anonymous survey was conducted among GPs and specialists who work in the Northeastern Bulgaria-Varna, Dobrich, Shumen, Targovishte. Doctors were surveyed in their real work environment and they were previously explained the subject and purpose of the study.

Results

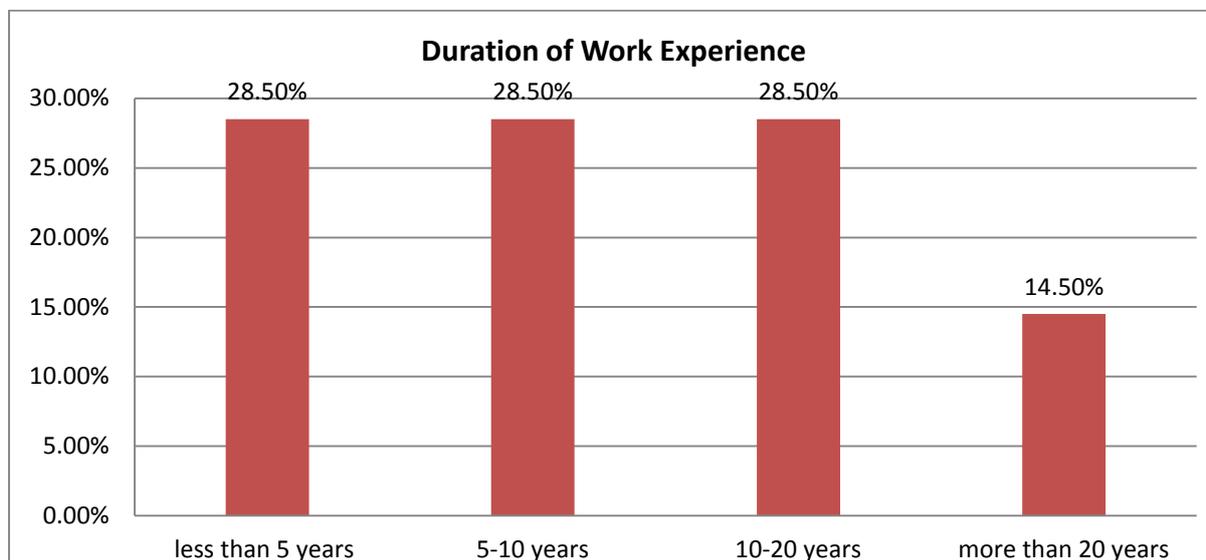
Altogether 50 doctors, GPs and specialists (dermatologists, otolaryngologists, and gynecologists), took part in the survey. The share distribution of the participants in the survey was as per **Figure – 1**. The biggest percent (66%) are specialists in dermatology (**Figure - 1**).

Figure - 1: Distribution of the participants based on their specialties.



The distribution of the participants based on the years of work experience was as per **Figure - 2**. According to the duration of their work experience doctors are distributed in four groups: with less than 5 years' experience; with 5-10 years' experience, with 10-20 years' experience, and with more than 20 years' experience (**Figure - 2**).

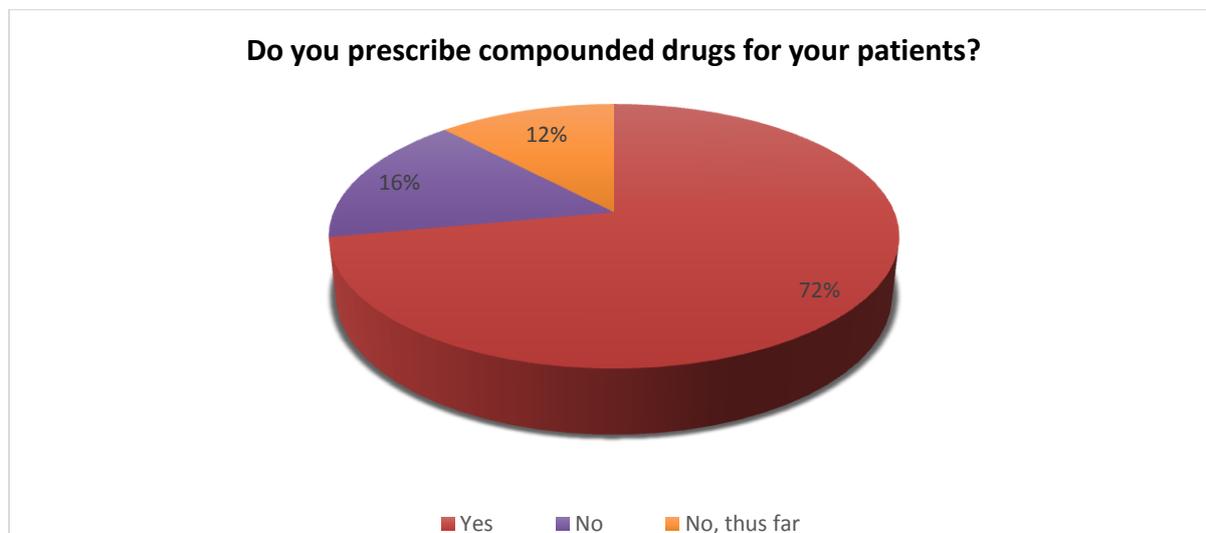
Figure - 2: Distribution of the participants based on the years of work experience.



Most surveyed doctors have 5-20 years' work experience. The percentage between the different years of work experience is equally distributed (28.5%).

On the question "Do you prescribe compounded drugs for your patients?" 72% of the doctors answered "yes", 16% answered that (generally) they don't prescribe them, and 12% haven't prescribed compounded drugs thus far (**Figure - 3**).

Figure - 3: Doctors' preferences for compounded drugs.



When asked to specify the advantages of compounded drugs, the surveyed doctors classed them thus: 37.5% said that their main advantages are the ability to be customized and the flexibility of dosage. 24.5% of the participants in the survey answered that their main benefit is that multiple active ingredients with synergistic action can be combined for better therapeutical results. 22% emphasized on the lower cost for

patients. Others prefer them because of their proven efficacy on certain diseases (11%), and also because of their possibility to be an alternative in case of supply shortage of industrially produced medicines (5%) (**Figure - 4**). The disadvantages of compounded drugs rated by the participants in the survey were as per **Figure - 5**.

Figure - 4: Doctors' points of view on the advantages of compounded drugs.

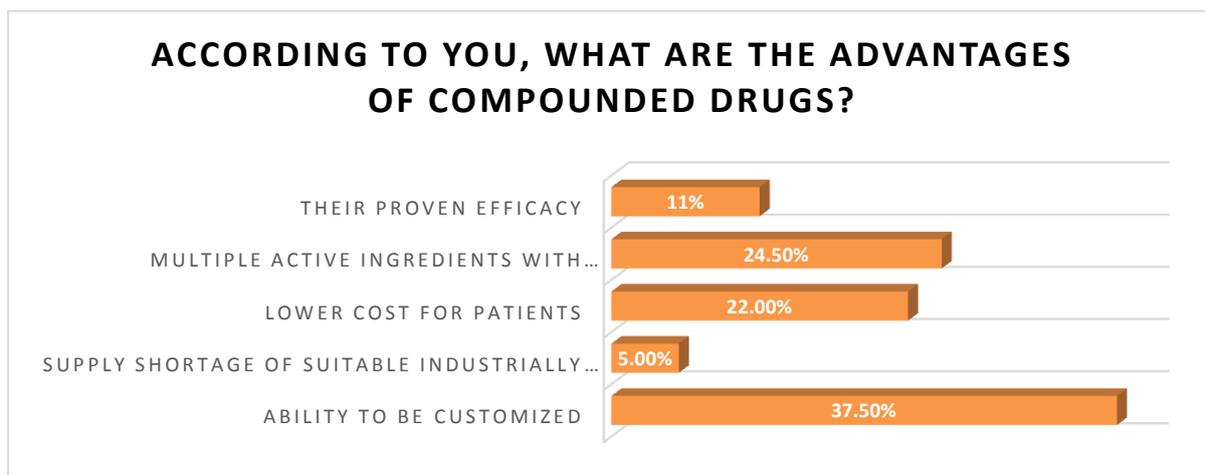
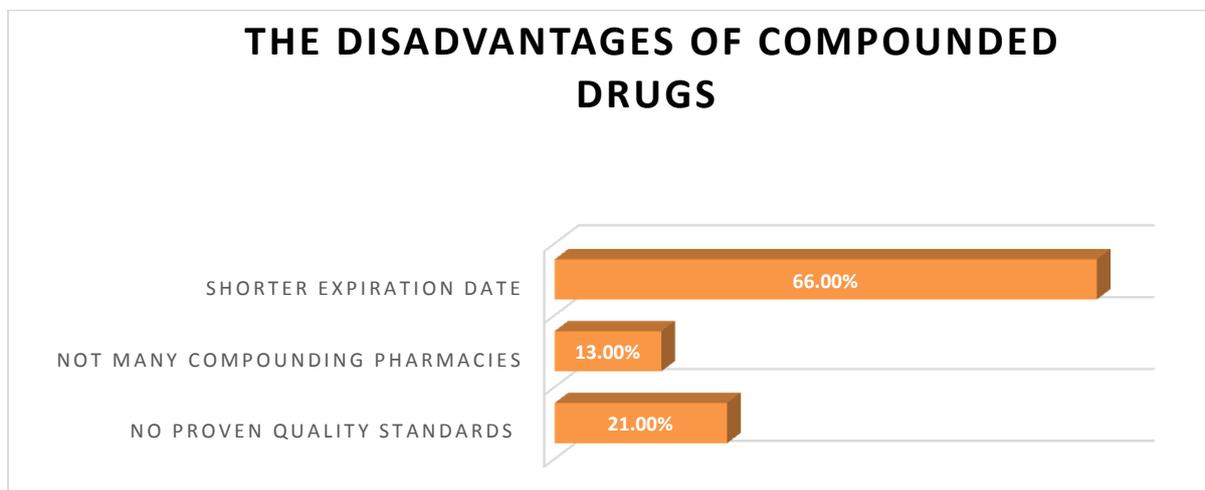


Figure - 5: Doctors' points of view on the disadvantages of compounded drugs.

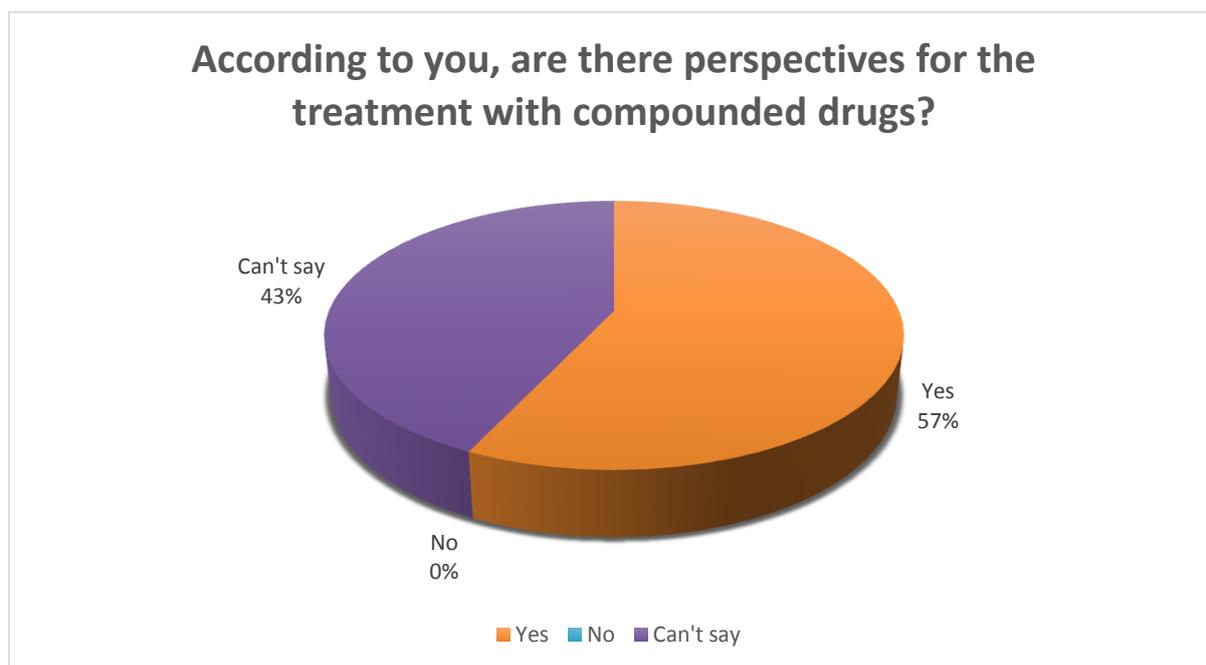


66% of the participants in the survey said that the main disadvantage of compounded drugs is their short expiration date. 21% of them answered that there aren't standards which prove their quality. According to 13% of respondents, the lack of many compounding pharmacies is a certain

trouble when conducting treatment with compounded drugs.

When asked about the perspectives of the treatment with compounded drugs, 57% are optimists, while 43% can't say. Nobody was pessimistic (**Figure - 6**).

Figure – 6: Perspectives for the treatment with compounded drugs.



Discussion

Extemporaneous medicines can be prepared by combining ingredients in a certain way, or by reconstructing or manipulating commercial products – e.g. turning a pill or capsule into a liquid for oral use [2].

The results of this study show that the most often prepared compounded drugs are for skin application – they form 44% of all extemporaneous medicines, which determined the majority of the surveyed dermatologists. Our findings of previous conducted study among pharmacists confirm that the most prescribed and prepared medications are for topical application [3]. Their main advantage turns out to be their ability to be personalized for an individual patient. Compounded drugs can be customized according to skin type in case of dermatologic diseases. All extemporaneous medicines for skin application don't contain preservatives, which makes them suitable for patients with tendency to allergic reactions.

The ability of the oral medicines to be personalized provides a possibility for

considering the age and pathology of the individual patient. This is especially handy for the needs of pediatric patients who have difficulty swallowing a pill, or need a different dosage form [4]. Many medications can be compounded as oral liquids for elderly patients with swallowing disorders (dysphagia), e.g. Parkinson's disease, Alzheimer's disease, etc. [5].

The rated second benefit that multiple active ingredients with synergistic action can be combined for better therapeutical results can be also associated with the pursuit of a personalized approach. In the light of the growing economic crisis in Bulgaria, the lower final cost is of great significance. Although rated next to the last, it was found that many doctors stake on proven and efficient combinations and ingredients with no alternatives in the network of shops ensuring optimal therapeutical success. Thus for example, an extemporaneous medicine containing pine tar, salicylic acid, and urea has a very good effect on patients with psoriasis [6].

According to doctors, the short expiration date of compounded drugs is their main disadvantage

and, in many cases, can be an inconvenience for patients, both from economic and practical point of view. Usually their expiry date is 28 days, unless they are stable chemical, in which case their use-by date depends on their stability.

The lack of proven quality standards may arouse suspicion in the way of dispensing a prescription, and is related to the necessity of observing certain rules and requirements for correct preparation, storage and sale.

The shortage of many compounding pharmacies is due to inaccessibility of compounded medicines. Unfortunately, fewer and fewer pharmacies provide this service, mainly because they need more employees, while providing the necessary conditions of work, and investing resources in an activity, which turns out to be unprofitable and economically unfavorable.

The majority of the surveyed doctors who see perspectives in the treatment with compounded drugs and the absence of negative answers undoubtedly prove extemporaneous medicines' efficacy and positive therapeutical effect. The big share of doctors, who answered "Can't say", is due to the many unknowns related to the accessibility and the possibility for treatment with compounded drugs.

Conclusion

The prescribing and compounding drugs are a possibility for ensuring optimal therapeutical success in a certain patient. The advantages of extemporaneous medicines define their important role in the personalized therapeutic approach.

The question about the perspectives and the future of compounded drugs is complex and depends not only on the number of prescribed prescriptions, but also on the pharmacists' willingness to dispense them, becoming equivalent partners of doctors in general treatment process.

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