

Protection department of environment, air in the usual house by 2-5 times more polluted, than outside.

The inscription "ECO" began to appear on many packaging of cleaners. It means that as a part of chemical products there are no ions of chlorine, phosphates and surfactants anions. They are safer for the person and environment. The household chemicals should combine high productivity and environmental friendliness, their influence on human's health should be considered by manufacturers.

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A.A. Karimova¹, G.N. Andrianova¹, O.Yu. Olshvang²

**APPROACH TO THE ANALYSIS OF SOCIO-ECONOMIC FACTORS
IN THE ACTIVITY OF THE STATE-OWNED PHARMACY CHAIN**

¹Department of Management and Economics of Pharmacy

²Department of Foreign Languages

Ural State Medical University

Yekaterinburg, Russian Federation

Контактный e-mail: pharm.usmu@gmail.com

Annotation. In the current situation of increasing competition on the regional pharmaceutical market it is necessary to introduce a holistic approach to the management of the entire set of business processes in the state-owned pharmacy chain, and a particular emphasis should be placed on the patient's needs. Management decisions should be based on the data of the situational analysis of the socio-economic factors influence on the activity of the pharmacy chain. A unified methodology of the organizational and pharmaceutical research of pharmacies does not exist until now. The development of new methods of social and economic, organizational and pharmaceutical research and validation of assessment of statistically significant social and economic factors in pharmacy activity is the topical problem. An integrated approach to the individualization of range of all categories of pharmacies has been developed, allowing to determine the requirement level of different categories of medicines with due consideration of economic characteristics and specific expectations of the target consumers in each segment.

Keywords: state-owned pharmacy, socio-economic factors

Assortment management in pharmacy chains should be based on the results of the analysis of key performance indicators of each pharmacy. Realization of social responsibilities in pharmaceutical activity is no less important than planned financial outcomes. A new image of the state pharmacy chain should be based on the quality and affordable pharmaceutical care. To improve the quality of monitoring of sales data of the product range it is necessary to justify the assessment criteria that can be presented in the form of aggregated categories of social and economic benefits.

The consumer demand management is based on a complex methodology [1], meanwhile a unified method of the social effects analysis of the assortment policy of the pharmacy chain does not exist, although the required analytical data for the implementation of "social" marketing programs, the models of discounting and availability of vital and essential drugs category (VED) are represented in the databases. It is important to identify the statistically significant social factors. It is necessary to create not only a portrait of the pharmacy customer, but the definition of the pharmacy format, according to socio-economic demand of the micro-market segment in which it is located. It is required to develop a methodology for the analysis of socio-economic factors and foundation for the application of its results for efficient assortment management for constant provision of social goals.

Purpose of research - to develop a model of the complex analysis of social and economic factors in the activity of the state-owned pharmacy chain in Sverdlovsk region and to substantiate its necessity for flexible management of assortment policy in different segments depending on the needs of the target consumer segment and the capabilities of the population in the assigned territory.

Materials and methods of research

The analysis of the primary data of state-owned pharmacy chain (93 pharmacies) for the last 4 years was conducted to justify the author's method of pharmacies categorization. Classic methods of ABC, XYZ-analysis, the sales and profitability dynamics analysis, the role [2] and portfolio analysis of the assortment were used.

A questionnaire survey was conducted among the loyal visitors of the pharmacy chain "Pharmacia", and random interviews about the quality of pharmaceutical care satisfaction were received. A pilot study of consumer loyalty have been implemented in 21 pharmacies of the chain, including 3 pharmacies in Yekaterinburg and 18 pharmacies in Sverdlovsk region (6 of them were located in rural areas). Calculation of sample size was performed using the OpenEpi software. Data profiles of pharmacies' customers (a total of 178 application forms) were analyzed using the Gretl software.

Research design was based on the developed pharmacies categorization model considering their segmentation due to organizational and management structure and unified sales logistics.

The author's method is based on the categorization of pharmacies and their

subsequent clustering for cross-sectional analysis of causal relationships and the influence of social factors on the pharmaceutical management. Confirmatory factor analysis was used to test the validity of factor structure hypothesis in our research model. The indices are all within the recommended tolerances.

Results of research and their discussion

Seven segments of the pharmacies were selected in the clustering corresponding to the signs of locations and the level of competition (the sample is representative if more than 10 indicator pharmacies are included in each cluster):

- pharmacies in residential districts (Yekaterinburg);
- pharmacies in rural areas (Sverdlovsk region);
- pharmacies-monopolists (Sverdlovsk region);
- pharmacies at the hospitals (Yekaterinburg);
- pharmacies at the hospitals (Sverdlovsk region);
- pharmacies near transport highways (Yekaterinburg);
- pharmacies near transport highways (Sverdlovsk region).

It was shown that the medicines of affordable rates (less than 50 rubles) make a significant contribution to the volumetric rate of the chain turnover (in physical terms) and in the amount of annual sales (app.65.8% of sales in thousand packs and app.10.4% of turnover in thousand RUB), especially in rural areas (78.2% and 26.5%, respectively). Due to the flexible management of all pharmacies there is a high proportion of vital and essential drugs (VED) which provides 84.2% of turnover in physical terms (thousand pcs.), 30.7% of value of trade (thousand RUB) and 22.5% of profitability margin among the full assortment list of the chain "Pharmacia".

Monitoring of controlled parameters (such as % of VED, maintenance of optimum assortment proportions in price ranges) showed that in individual product matrices within 20 universal pharmacies categories are provided by stable economic indicators in the whole chain "Pharmacia". It is a positive impact of the category management implementation. Further on it was found that the possibility of flexible price policy management is implemented not only in pharmacies categories, but also at the level of strategic management, divided in accordance with the results of micro-market segmentation and competitive environment.

There is a steady trend of increasing demand for the VED category and medicines of affordable rates (less than 50 rubles) category, while proportionally increasing the turnover of the chain.

In addition, there is not only an alternative replacement for the simple medicines (not VED), but an increase of the VED consumption in absolute figures, which may be associated with increased consumer confidence (especially in rural areas).

It is important to focus not only on economic but also on social effects, to make a good image of state-owned pharmacies as the guarantor of quality, safety and availability of the most effective medicines. An important social effect is the provision of the required product profile to target consumer in accordance with the characteristics of the micro-market environment and analysis of consumption trends

in the selected segments.

Statistically significant social factors in the assortment policy management (due to surveys and interviews of visitors) are the level of service, the quality of pharmaceutical care and competence of the pharmacies staff which influenced the consumer loyalty of patients. The relation between the variables was shown by correlation analysis (Gretl). A significant relationship ($p < 0.001$) between strict adherence to the service standard ($k_r = 0.553$), quality and completeness of consultations ($k_r = 0.749$), and the level of consumer loyalty was demonstrated.

The majority of the visitors (74.7%) selected medicines of affordable rates (less than 50 rubles) category and the VED category as the most important groups of medicines for them (especially in rural areas – more than 89.1%). Subjective factors are strongly supported by economic indicators corresponding to the actual level of consumption of these pharmacy categories.

The contribution of these categories to the indicators of the range within the allocated seven micro-market segments was evaluated. The possibilities of contribution analysis are important for effective management of the pharmacies assortment matrix.

The proposed method of socio-economic indicators complex analysis allows to individualize the pharmacy assortment and to determine correctly the required medicines demand in different categories according to economic characteristics and specific differences of the expectations of the target consumers in each segment. This would make the management system flexible and adapted to customer needs. The modern technology of category management implementation provided a steady growth of turnover ratio without prejudice to the realization of social functions.

Conclusions:

1. We managed to align the economic management aspects with current directions in public policy concerning the improvement of quality of pharmaceutical care, especially in rural areas.

2. The method of clustering of pharmacies in state-owned chain gives the opportunity to combine the economic and social factors of management. Stable growth of turnover ratio is achieved without detriment to the realization of social functions.

3. We have shown the importance of considering the factor of pharmacy location and its competitive environment in case of clustering and representative sampling for carrying out the organizational and pharmaceutical research.

4. It is expedient to analyze the correlation between the social aspects defining pharmaceutical management strategy and the level of consumer loyalty.

5. The management of VED category and medicines of affordable rates category in rural pharmacies is very important to guarantee the drugs provision to the population, to preserve high rates of drug supply and to increase the level of target consumers' compliance in all market segments.

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**К.Д. Абрамова, К.Е. Волкова, Ю.В. Татарченкова, Н.А. Попова,
Л.П. Ларионов**

**ИЗУЧЕНИЕ ОСТРОЙ ТОКСИЧНОСТИ И БЕЗОПАСНОСТИ
ФАРМАЦЕВТИЧЕСКОЙ КОМПОЗИЦИИ, СОДЕРЖАЩЕЙ КРЕМНИЙ,
ХИТОЗАН, МОЛОЧНУЮ КИСЛОТУ НА МЫШАХ ПРИ
ВНУТРИБРЮШИННОМ ВВЕДЕНИИ**

Кафедра фармакологии и клинической фармакологии
ГБОУ ВПО Уральский государственный медицинский университет
Екатеринбург, Российская Федерация

**K.D. Abramova , K.E. Volkova , Y.V. Tatarchenkova, N.A. Popova,
L.P. Larionov**

**STUDY OF ACUTE TOXICITY AND SAFETY PHARMACEUTICAL
COMPOSITION COMPRISING SILICON, CHITOSAN, LACTIC ACID IN
MICE BY INTRAPERITONEAL INJECTION**

Department of Pharmacology and Clinical Pharmacology
Ural state medical university
Yekaterinburg, Russian Federation

Контактный e-mail: ks.abramovich95@mail.ru

Аннотация. В статье рассмотрены задачи о нахождении новых и безопасных методов лечения и способы минимизации концентрации препаратов при сохранении их терапевтической эффективности. В этом аспекте многообещающим является использование фармацевтической композиции - кремнийхитозансодержащего глицерогидрогеля и молочной кислоты.

Annotation. The article considers the problem of finding a new and safe treatment options and ways to minimize the concentration of drugs while preserving their therapeutic efficacy. In this aspect, the use is a promising new pharmaceutical compositions based kremniyhitozansoderzhashego glitserogidrogelya.

Ключевые слова: фармакология, эксперименты, лабораторные животные

Keywords: pharmacology, experiments, laboratory animals

Введение

Последнее время наиболее остро встает проблема поиска новых безопасных методов лечения и способов минимизации концентрации лекарственных средств при сохранении их терапевтической эффективности.