

## OPINION

**By:** Prof. Evgenia Ivanova Delcheva, PhD;

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**Regarding:** dissertation work for the award of the educational and scientific degree "doctor" in the doctoral program in the scientific specialty "Organization and management outside the sphere of material production (health care)", professional direction 3.7. Administration and management at MU-Varna.

**Reason for presenting the opinion:** participation in the composition of the scientific jury for the defense of the dissertation according to Order No. P-109-480/16.11.2023 of the Rector of the MU - Varna.

**Author of the dissertation:** *Svetlana Krasteva Panayotova*

**Dissertation topic:** *Factors affecting the utilization of health services in Bulgaria*

### **1. General characteristics of the presented dissertation work**

Svetlana Panayotova's dissertation consists of a list of abbreviations, an introduction, four chapters, a conclusion, a list of references, 6 appendices. The volume is 207 pages long and contains an impressive 29 tables and 27 figures. The literature used is from 159 sources (41 in Bulgarian and 118 in English languages).

The dissertability and relevance of the chosen topic of the dissertation work is based on:

- The current **global trends of stricter control** over the usability of health services and introduction of regulations for the expansion of health costs.
- **The public interest and sensitivity of citizens to health care problems**, including issues of access and usability of various types of health services.
- The need **to apply objective and scientific approaches** for more adequate regulation and modeling of usability in pre-hospital and hospital care.

S. Panayotova well substantiates the relevance, the degree of development of the problems of the use of health care and the methodological components of the set topic (goal, tasks, object and subject of the scientific research, general framework of the methods and limitations of the development) in the introduction. The object and subject of the study are clearly presented. Its limitations are also appropriately exposed.

The objective and tasks are well formulated. The main objective of the study is to study and analyze the factors underlying a model of the usability of health services and to assess its applicability in Bulgaria. The following are five tasks that correspond broadly to the content of the four chapters.

What I lack in the dissertation work is the formulation of a main thesis and scientific hypotheses as part of the methodological toolkit in the introduction.

Instead, the methodological framework of the research is presented extremely precisely and comprehensively in four large groups of methods: 1) research of the scientific literature and corresponding application of content analysis on keywords related to the usability of health services in several databases in

English and in Bulgarian languages; 2) Analysis of contextual factors from the environment affecting usability; 3) Sociological survey (on-line momentary non-representative survey among citizens - users of health care according to the respondent method); 4) Statistical methods for analyzing the results of the survey - using SPSS Statistics 19.

The scientific literature used by the author illustrates an excellent awareness of both Bulgarian authors and foreign-language authors with publications in the field of the subject under consideration.

## **2. Evaluation of the obtained scientific and scientific-applied contributions**

In the dissertation work of Svetlana Panayotova, we would distinguish several scientific (theoretical) and scientific-applied (theoretical-applied) contributions enriching the scientific fields - healthcare economics and healthcare management. The contributions are placed within the scientific specialty "Organization and management outside the sphere of material production" as they concern socio-medical, socioeconomic and other factors for the use of health services.

### **A. Theoretical (scientific) contributions**

Theoretical scientific contributions include **extensive literature review and prominent authors** with publications in the field of modeling and usability of health services. An initial search of publications was conducted in the scientific information databases PubMed, ScienceDirect and Google Scholar, covering the period from 2010 to September 2022. An additional manual search of the relevant reference lists was conducted using the "snowball" method. A content analysis of the literary sources presenting the main theories and the most

frequently applied models was also carried out in order to derive the main factors influencing the consumption of health services. As a result of the analysis, the leading place of the Behavioral Model of Health Services Use (Behavioral Model of Health Services Use) of Ronald Andersen (hereinafter referred to as the Behavioral Model or the Andersen Model for short) is outlined, on which many studies are based. An additional search of systematic reviews based on the Behavioral Model was conducted to identify the main and most frequently studied determinants of usability.

### **B. Theoretical and applied contributions**

The main theoretical-applied contributions in the dissertation work are **adaptation of Andersen's model to the usability of health care in Bulgaria and the corresponding results, conclusions and recommendations**. For the **first time** in Bulgaria, usability was modeled on the basis of Andersen's behavioral model. These theoretical-applied contributions follow the logic of the development content:

1. **Essential contextual factors** (from the environment) that influence the usability of health services, including health-demographic and financial indicators, have been researched, and an additional factor has been proposed, namely the epidemic situation (Covid crisis), which influences the increase in usability in the post-epidemic period. The aging of the population in Bulgaria affects in the same direction (growth). Other important findings are that public financing of the health sector is increasing as an expression of public priority. Also, the share of direct payments is gradually decreasing, incl. and the unregulated by patients.

2. S. Panayotova has developed a **methodological toolkit** for the study of individual factors affecting the usability of health services in Bulgaria, in accordance with Andersen's Behavioral Model. The methodology takes into account a large number of individual characteristics (gender, age, place of residence, marital status, education, income, health status, voluntary insurance, self-assessment of health, chronic diseases, health behavior) of health care users, classified into several groups - predisposing , enabling, need-related and personal health practices.

3. Thirdly, as an applied contribution, I will emphasize the **implementation of the prepared methodological toolkit**, which found expression in the conducted, albeit unrepresentative, survey of individual characteristics (sociomedical, socioeconomic and other aspects of the used health services in primary, specialized outpatient and hospital care) of the persons surveyed . The survey covered 1,748 respondents, of which 1,292 completed the entire survey. The great advantage of this study is precisely its complex nature. I will also point out that the survey complies with the general regulation on the protection of personal data (regulation 2016/679), as well as being approved by the Research Ethics Committee of the MU-Varna.

4. Through **statistical analyses**, the influence of the factors from the Behavioral Model on the use of services has been established, and numerous comparisons have been made with the results of similar and similar studies by other authors working on the problems. **The applicability of the model in our practice** was also confirmed and evaluated.

5. On the basis of the conducted research and the obtained results, **general conclusions and recommendations** related to the application of the selected model in studies in our country have been formulated. The dissertation student draws general conclusions that are **socially significant**. The main conclusion is that the usability of health services is influenced by multiple factors from the environment, individual characteristics and health behavior of individuals.

The factors that influence the health services used have different strength and direction of influence. For example, trust in the doctor, health status of the user, lifestyle (risk behavior and sports), as well as economic status (income) have a stronger influence on the use of health services.

A **great scientific asset** are the comparisons of the results obtained from the survey with results from other studies. Some conclusions of the dissertation support part of the conclusions formulated by M. Grossman (in 1972-73 Grossman further developed the production theory of the household, created by G. Becker in 1965, applying it to health) who is the creator of the demand model of health and health care depending on factors such as health status, age, income, education, etc. More educated individuals are more willing to pay for a check-up, but they see a doctor less often because education raises the marginal productivity of human capital and the production of health becomes more efficient, at lower costs. Another conclusion of Grossman supported by the present study is about the relationship between income and the use of health services (which is also an expression of the demand for health care) - there is a positive dependence of the demand/usability of paid health care on income.

S. Panayotova also includes as a factor the type of health services - e.g. people with lower incomes turn more often to general practitioners, and people with higher incomes to a specialist and prevention.

**Another scientific merit of the work and the results** achieved are the data on the frequency of different types of health services, which have been shrouded in ambiguity for the last 20 years. The dissertation student receives data on the average number of general practitioner visits, specialists and hospital admissions during the pandemic (2021) and after it.

Here I want to add that the statistical methods applied to the survey **results add value to the survey and objectify the scientific results.** The obtained low values for the degree of significance of the relationship between the usability of health services and various factors suggest that in the future it is necessary to expand the samples, including at the national level.

In the development methodology, I see **potential for the organization of a national project with similar objectives**, which will shed more light on the impacts on the health services used. But for the purposes of a dissertation, the work done by the PhD student and the scope of the study are quite sufficient.

### **3. Evaluation of dissertation publications**

Svetlana Panayotova has presented 4 publications reflecting parts of the content of the dissertation work. Two of them are scientific reports in the Varna Medical Forum, and one is a scientific article published in the journal "Social Medicine". The fourth publication is in the Journal of Biomedical and Clinical Research. All posts are self-contained.

### **4. Assessment of the dissertation summary**

The dissertation summary basically reflects the content of the dissertation work.

### **5. Critical notes, recommendations and questions**

- The introduction lacks exposition of the most important methodological component – main thesis and scientific hypotheses. If the doctoral student can answer during the defense.
- On p. 87 (above) it is mentioned about limits on the number of directions incl. and for research. In fact, research values are limited - ie. doctors are given a research budget to fit within the quarter.
- The dissertation is of great interest to health personnel and managers, as it contains socially significant and up-to-date conclusions. That is why I recommend its publication as a monograph.

### **6. Conclusion**

In conclusion, I can summarize that the scientific production contains results representing the enrichment of scientific knowledge and applicability in the field of economics and health care management, therefore I recommend the Honorable Jury at the MU - Varna to award Svetlana Krasteva Panayotova with an educational and scientific merit degree "doctor" in the scientific specialty "Organization and management outside the sphere of material production (health care)".

10.01.2024 / Sofia

Signature:

Заличено на основание чл. 5,  
§1, б. „В“ от Регламент (ЕС)  
2016/679

Prof. E. Delcheva, PhD