

STATEMENT

- By:** **assoc. prof. Alexander Ivanov Valkov, PhD**
Prof. field: 3.7 "Administration and Management", sc. field "Organization and Management of Non-Material Production (Civil Society Institutions)"
Public Administration department, UNWE, Sofia
- Regarding:** thesis for the educational and scientific degree PhD in prof. field 3.7
"Administration and Management", sc. field "Organization and Management outside the Sphere of Material Production (in health care)" at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna
- Author:** **Svetla Krasteva Panayotova**
- Title:** **FACTORS INFLUENCING HEALTH SERVICE UTILISATION IN BULGARIA**
- Grounds:** order No. P-109-480/16.11.2023 for participation in the scientific jury

1. Information about the dissertant

1.1 Details of the PhD programme

Svetlana Krasteva Panayotova has completed the full course of studies in the doctoral program "Organization and Management outside the Sphere of Material Production (in Healthcare)" in the professional field "Administration and Management" at the Department of Economics and Management of Healthcare, Faculty of Public Health, Medical University "Prof. Dr. Paraskev Stoyanov" - Varna in the period 2021 - 2023. "Factors influencing the utilization of health services in the epidemic situation", and the scientific supervisor was appointed Assoc. Prof. Elka Atanasova was appointed as the supervisor. The examination for the PhD programme minimum was passed with honours on 10.02.2022 and the PhD examination in foreign language (level B1) was successfully passed on 21.04.2023. All the activities foreseen in the Individual Study Plan (examinations, work on the dissertation and publications, teaching and pedagogical work) have been completed, for which the PhD student has collected the necessary credits, has met the minimum science-metric requirements and has received positive attestation marks for all academic years.

According to the report of Assoc. Maria Rohova, Head of the Department and the decision of the Faculty Council of the Faculty of Public Health in 2023 was approved the change of the dissertation topic to "Factors influencing the utilization of health services in Bulgaria". The doctoral studies are completed within the period of studies as the dissertant is dismissed with the right to defend after a discussion in the Department, a decision of the Faculty Council of the Faculty of Public Health and by the Order of the Rector of Medical University - Varna (from 16.11.2023).

1.2 Brief biographical data

The vocational and educational paths run parallel and have a common direction. The educational portfolio of Svetlana Panayotova (born 03.10.1977) is related to Medical University - Varna. After completing her secondary education at the Gymnasium with foreign language teaching in Haskovo in 2016 (proficient in English and German), she underwent a 5-year course of study in the Master's program "Health Management" (Medical University - Varna, where she graduated with honors in July, 2021 and received a professional qualification "manager". In the following years he gained professional practical experience in the specialty by working in marketing and sales in a medical centre and as a sales agent in a pharmaceutical distributor company. In parallel with his work as an expert in International Cooperation at Medical University - Varna, he started his academic career first as a visiting assistant professor at the Department of Health Economics and Management (from 2019) and a year later as a full-time assistant professor at the department.

Education, practical experience and work on the dissertation support teaching activities - she teaches seminars with students in Health Management, Health Care Management, etc. in undergraduate and graduate courses in the subject area of health economics.

Active participation of the PhD student, especially in recent years, in training courses and seminars aimed at improving her scientific and pedagogical qualifications (in particular - scientific communication; research design; pedagogical competence). Since May 2023 she has been specializing in Health Economics at the Medical University of Varna.

I don't know the dissertator personally. The main points of the biography mentioned above clearly prove that doctoral studies and the choice of a research topic are closely related to the professional field and represent a key stage of systematic and focused training. The combination of practical experience in the field of marketing management, specialised education, scientific and academic pursuits are of great importance for the rapid and successful completion of the PhD. The above-mentioned data are related and reflect another visible and important aspect related to the dissertation - precision in scientific work, competence as a researcher, purposefulness in searching for solutions to the set tasks, and an obvious effort to translate complex research questions into practical language.

2. General characteristics of the dissertation

2.1. Dissertation description. The submitted manuscript consists of 207 pages, of which 155 pages are main text, structured in the following parts: introduction, four chapters and conclusion. A total of 29 tables and 27 figures are included in the main text, of which 22 tables and 13 figures are entirely original, all precisely formatted and clearly sourced. The vast majority of them reflect and summarize the results obtained in the course of the research presented in Chapters Two and Three of the dissertation. Specifying the time period to which the data reflected in Tables 2.1 - 2.7 relate would have made their title more precise. Figures 2.1, 3.1 and 3.15 are graphically and substantively identical, focusing on a particular part (element) of the model shown in Figure 1.4, representing the latest version of Andersen's Behavioural Model (i.e. they do not carry new information and I find their repetition redundant). The extensive use of figures and tables underline the study author's desire to present the specific results obtained in a meaningful and convincing way and to answer the main question posed in the title, what are the factors and how do they influence the use of health services in the country. The derivation and concentration of the argumentation in the "theoretical part" of a complex (from the point of view of the factors), applicable and comparable (from the point of view of the data) model, greatly supports the practical perception, understanding and conceptualisation of the complex and intertwined processes that describe health consumption.

At the beginning of the manuscript are lists of abbreviations used in the text, figures and tables. At the end of the dissertation are 6 appendices (30 pages in total) that illustrate key highlights of the applied research methodology. The questionnaire and sample parameters, the systematic reviews of the application of the behavioural model, the structured presentation of the strategic management documents, the aggregated data on the differences in usability between different groups of respondents illustrate the broad informational foundation of the dissertation research. Sharing information about the methodology and results of the study provides an opportunity to test its validity. All of this demonstrates the dissertator's willingness to fully present, accurately, fully and convincingly argue the theoretical generalizations and specific empirical results of the study.

Another important element is the bibliographic reference of the literature used. In it (12 pages in total) a total of 159 sources are shown, which are the theoretical foundation of the thesis. Due to the underdevelopment of this topic in our scientific literature (also noted by the dissertator in the text), as expected, the sources listed in Cyrillic are 42 and the remaining 117 are in English. A closer look at the structure of the mentioned sources shows that those in Bulgarian are predominantly under the heading of legislation, normative acts and statistical sources (31 in total), while those in English are scientific publications (articles in scientific periodicals and books) - 109 in total. Insofar as the specific pragmatic aim of the dissertation is to test the applicability of Andersen's Behavioural Model to the

usability of health services in Bulgaria, which this study does for the first time, it is logical that the theoretical basis of the dissertation is contained in the presented foreign language sources. Although not focusing on the modelling of health consumption, but looking at different aspects of utilisation (economic, social, etc.) there are a number of theoretical and empirical studies in the Bulgarian literature that are relevant to the subject area under consideration.

From a substantive point of view, it can be summarized that the above literature fully corresponds to the chosen thematic research field. Moreover, and this should be noted as a merit of the dissertation: the compilation of the bibliography of the sources is also the result of a precisely prepared, thought out and conducted research process, which proves the skills of the dissertant as a researcher. This is well illustrated in the research approach and methods described in the introduction, which outline the process of identifying and exploring theoretical concepts and models of healthcare usability. The bibliography in the dissertation is a scholarly product, the result of a cascading study, of a systematisation and synthesis of scholarly literature on the topic. This has allowed the dissertation to reflect not only current model views, but also to provide a broad temporal and substantive context for scholarly inquiry and discussion in the field of health consumption. Virtually all sources are publicly available with a correctly referenced internet address, a sign of following the strict rules of scientific ethics, which ensures transparency and traceability of the data and information used, and as a result increases the credibility of the results presented and of the dissertation as a researcher.

Last but not least, the overall impression of the work is excellent: academic standards of academic writing have been uncompromisingly followed; precision in describing the sources; the adopted way of referencing and citing supports the understanding of the ideas and results; with attention to visualization and technical details; without a single error in the text; concise and clear scientific language... This is evident both in the reviewed manuscript and in the submitted publications. All of this shows that the dissertation has developed a signature of a polished academic writing style, a thorough and correct presentation of scientific arguments.

2.2. Relevance of the study. The relevance of the topic seems obvious and indisputable, and hence the importance and significance of the obtained research results - in scientific (theoretical) and scientific-applied terms. The dissertation proceeds from the understanding that the study of people's needs is a starting point in the organization of the health system and in the shared efforts of its participants to improve the effectiveness of its functioning at the macro and micro levels (pp. 10-11). Knowing, understanding, and considering the motives and actions people take in the interest of their health brings multiple and undeniable benefits that can be summarized in different directions - medical, health policy, economic, social, etc. Among these, the following more important ones stand out, mentioned at different places in the thesis: (a) preventing overuse, underuse and misuse of health services; (b) formulating policies and programmes that promote appropriate use, equitable distribution of health resources and services, promote cost-effectiveness in health care and improve financial stability in the health sector; (c) strengthening trust in health service providers; (d) predicting people's behaviour in relation to the use of health services; (e) improving health outcomes and individual satisfaction. The large scientific task of conceptualizing, modelling, and measuring the utilization of health services, against a wide range of variables, including demographic, economic, organizational, social, cultural, values, beliefs, and a few others, is an immediate cognitive and practical necessity. This understanding is defended convincingly by the dissertation in paragraphs 1.2.2 - 1.2.3 and in presenting the evolution of Andersen's behavioural model (paragraph 1.3.1).

It is likely that Andersen's behavioural model, supplemented and updated every ten years as its history shows (see paragraph 1.3.1), will continue to evolve and thus provide a relevant explanation of why and how people seek health services for its time. The relevance and significance of the research proposed in this dissertation is also determined by the fact that, as the author herself notes, "no studies have been found that apply a specific model to study the determinants of healthcare utilisation in Bulgaria" (p. 11). Considered in the context of models that link factors to health care utilization and in particular the Behavioural Model applied as an analytical framework, the dissertation can be defined as a pioneering study whose outcome is primarily theoretical and methodological. This is in line with the

second part of the formulated main aim of the dissertation ("to assess the applicability of the model in health care in Bulgaria", p. 12) and the practical recommendations formulated in section 4.6 regarding its use in subsequent research (pp. 162-163). This is the main idea of the dissertation, which she tries to present coherently and fully.

It can be summarized that the topic is underdeveloped in our country and the dissertation opens a research niche for systematic, representative and long-term research in a key area for health system improvement and outcomes.

2.3. Research design (subject, object, aims, limitations, methods). The first thing to note in this direction is that the elements of the research design are not set out in full and in one place only, as a rule in the introduction, but are developed and supplemented in the course and at different stages of the dissertation research. I find this approach to be correct and proper in view of the fact that the dissertation provides a "test of applicability" of a chosen model for the study of health consumption factors. In other words, the structure (elements and relationships) of the Behavioural Model defines the research tasks, the research approach and methods, the logic, the stages and its limitations. The introduction provides answers to important guiding questions - why, what and how is being investigated - but a detailed description and justification of the Behavioural Model is provided in Chapter 1, which outlines a clearly applicable analytical framework on which the next two chapters base the research methods (depending on the parameters set in the model) and present specific results.

The introduction provides information on three main points: (a) the object and subject of the study; (b) the aims and objectives of the thesis; (c) the research approach, methods and limitations. This exposition is minimalistic as some essential elements (research thesis, main hypotheses, research logic, expected results) that would give a more complete picture of the idea and its implementation are missing.

(a) The **object** of the study is stated to be "health service utilization". Given the model applied, health utilisation is operationalised in measurable indicators - contact with the health system and the number of health services used over a period of time, relative to the three types of health services - examination by a general practitioner, examination by a specialist, and hospital treatment. The object of the research (which reflects the idea of the study and the guiding scientific task) is (1) the identification of the factors determining the utilization of health services (using a specific model), (2) the assessment of the direction and strength of their influence, (3) on this basis explaining the differences in utilization between people (p. 11). The research problem is defined correctly. It directly reflects the task of any science, the study of causal relationships, in the specific context of health consumption.

(b) The **main objective** outlines an expectation of a two-pronged end result: (1) to analyse the impact of factors influencing the utilization of (the three types of) health services based on a selected model for utilization research and (2) to assess the applicability of this model to health care in the country. The two research directions are relatively independent research tasks, but their realization can only be achieved as a joint result. From this point of view, the fulfilment of the main objective reported in the conclusion is made only with respect to its "first part" mentioned here. To the extent that the survey conducted does not strictly guarantee representativeness (despite the significant number of respondents and as the dissertation itself stresses) the main objective is limited to assessing the influence of operationalised factors included in the model on the basis of specific parameters. This is consistent with the discussion of the results made (standard; relative to other published results) in Ch. 4.

The achievement of the main objective is the cumulative result of the solution of 5 tasks, which determine the structure of the dissertation, the methods and the specific course of the research. The first task assumes as an expected outcome the selection of a model for the study of health service utilization (Chapter 1). In parallel and based on the selected model (in Chapter 1), the second task, structural identification of the main determinants of usability, is addressed. The third and fourth tasks, provide results of studies of two main groups of factors derived from the model: contextual factors

(Ch. 2) and individual factors and personal health practices (Ch. 3). Evidence for solving the last task, is the sensitivity of the factors included in the model to our practice (4th Ch.).

The lack of a main thesis and hypotheses of the study is a drawback, but it is not an insurmountable obstacle to the qualitative fulfilment of the main goal and does not violate the merits of the dissertation. Rather, it affects the possibilities for a deeper and more extensive reflection on the results in the dissertation. The target network described above foregrounds an outcome of methodological and research-applicational importance - the testing of a model (factors) of health service utilisation. The summary made at the beginning of the conclusion (p. 164) could play the role of a thesis, i.e. a logical summary result of the dissertation.

(c) The high quality of the dissertation research can be judged by the broad instrumental portfolio of research **methods** applied according to the specific tasks. The rationale of the "doctrine" (the choice of a model for usability research in Ch. 1) is based on a two-stage study of available publications in databases of scientific information, on content analysis and on the extraction of systematic reviews based on the User Model. The assessment of contextual factors (in Ch. 2) is mainly carried out by examining regulatory and governance documents, and databases of health information. To assess individual characteristics, the methods of descriptive statistics, statistical analysis of significance, analysis of mean (t-test) and one-factor analysis of variance (ANOVA), multivariate regression analysis - binary logistic regression and negative binomial regression are used. The choice of each method is justified by the objectives of the analysis and the characteristics of the data. The limitations of the study described are correct and reflect those in relation to the scope and period of the study, the manner of conducting the sociological research, etc. Admiration to the dissertator for the ability to plan the entire course of the research, to prepare the objectives and applicable data methods, and to combine precise theoretical analysis and generalizations, and sophisticated statistical apparatus as a basis for objective evaluations.

To summarize, the dissertation submitted for review meets the requirements for this kind of research - clear structure with emphasis on methodology, scientific review and argumenta presentation of empirical results, scientific apparatus including accurate reference to literature sources, visibility of the research tools used. The dissertant has worked with integrity and a commitment to precision in the use of accumulated knowledge, literature and information in his dissertation research. There are no indications of improper use of others' sources, ideas and/or work.

3. Scientific and applied results

The dissertation is organized in 4 chapters and in all parts the author demonstrates a thorough knowledge of the issues and an excellent command of the methods of analysis. The structure of the dissertation is logical and justified - it is determined by the structure of the behavioral model - its main elements are consistently explored in a meaningful way. What are the main scientific achievements in the individual parts?

a) **Chapter One** ("*Theoretical Foundations of Utilization Research in Health Care*") plays a central role in the dissertation. Its purpose, first of all, is to provide a clear understanding of the object of study, healthcare utilisation, and on this basis to outline and compare different perspectives on its study. This ensures that the two stated objectives are addressed: on the one hand, to justify the choice of an approach (and hence a model) for the study of health service utilisation and, on the other hand, to identify the main factors influencing it and their coherence in the model. Secondly, the justification of the choice of a model for usability research organizes (evident from the structure of the thesis) the overall process of its testing and verification based on specific data for Bulgaria.

Relevant to the thesis research are the following theoretical generalizations: (1) Utilization is a concept for the quantitative study of the consumption of health services, which is determined by a complex of factors/determinants (individual characteristics and environmental factors); (2) As a measure of actual consumption, utilization is an objective basis for other key health concepts - demand for health services, presence or absence of (inequitable) access, efficiency of medical services and cost-effectiveness; (3) Historically, different approaches to health services research

have evolved from reflecting discrete groups of factors, processes, and actors to integrating knowledge about the determinants of health use; (4) The behavioural model of health services use reflects the maximum number of relevant determinants of health use (also accounted for in alternative approaches) and provides as complete a picture of utilization as possible; (5) The structure, evolution/revisions and applications of the Andersen Behavioural Model (validated repeatedly in comparable international and national studies) characterize it as an integrative, comprehensive, flexible and generalizable conceptual tool for health service utilization research. From a practical point of view, it should be noted that the differentiation of factors in the model into predisposing, enabling and need-related is universally applicable, and their differentiation (in the latest versions of the model) into contextual and individual characteristics improves the sensitivity of the model, its descriptive and analytical capabilities. This provides a reason to define the selected Behavioural Model as a universal model of health consumer behaviour.

The dissertant shows very high theoretical preparedness and skills in defining key concepts. The refinement of key terms, the generalization and comparison of distinctive features inherent in specific research approaches/models, and the periodization in the development of the scientific and applied field of usability research are visible evidence of the dissertant's theoretical preparedness and skills.

b) Chapter two ("*Contextual characteristics influencing the usability of health services*") starts the testing of the model in its functionally first part - the block of contextual factors that shape the environment. Their influence is general and determining, and their placement at the beginning is justified. According to the model, these factors influence usability indirectly, through their respective individual characteristics. According to the structure of the model, the dissertation proposes an overview and assesses the influence of selected contextual variables (with country-wide data) at the aggregate level, differentiated in the three functional groups: predisposing, facilitating and related to the need for health services.

This chapter of the dissertation is analytical in nature and its achievements should be sought in methodological and scientific application terms. They can be synthesized as follows: (1) Aggregate data relevant to this part of the model are selected, which individually and collectively (bundled) provide an understanding of the level and changes in the utilisation of health services; (2) Trends of the main contextual determinants - demographic, social and community beliefs - are outlined, allowing to predict their (individual) influence on health behaviour and health service utilisation; (3) The analysis of contextual enabling factors (health policy, financing, organization) draws a coherent picture of health system functioning and identifies key institutional, resource and organizational issues that affect health service delivery and utilization; (4) (5) A differentiated assessment of institutional (health policy) factors and coherent (supporting) measures in resource and organizational terms are needed to take workable and effective measures to manage utilization.

The addition of the factor "epidemic setting" (probably the original intention of the dissertator in view of the original topic with which he was enrolled in the PhD) is a contributory authorial decision that is justified. The significant influence of Covid-19 (both directly and through anti-epidemic measures) as a contextual factor in health service utilisation is demonstrated.

This part of the study presents the dissertator's ability to think and analyse at scale, to select indicators relevant to the object of study, and to extract trends and issues through them, predictors of health service utilization.

c) Chapter three ("*Exploring Individual Characteristics Influencing Health Service Utilization*"), as its title indicates, directs the dissertation's attention to the next two components of the model - individual characteristics and health behaviours. This aggregation of the two sets of factors into one part is justified. The rationale is that they are two facets of individual behaviour, and their study uses a common information base - a cross-sectional study conducted with 1292 respondents. The survey provided primary data collected through an online questionnaire, necessary for model testing in assessing respondents' individual behaviour in the basic model architecture of factors - predisposing, enabling and health needs related characteristics. A series of statistical analyses, after

processing the resulting survey data, provide valid empirical estimates of relationships between individual factors and health service utilization.

Similar to the previous section, this chapter of the thesis is analytical in nature and its achievements should be sought in methodological and scientific-applied terms: (1) Profiles of individual characteristics by sample variables in the model structure - predisposing, facilitating and need-related (perceived and assessed need) - have been constructed that correlate, specify and confirm at the micro-level (for the population under study) the contextual variables corresponding to them; (2) Confirmed the importance of the personal health practices factor in health service utilization; (3) Found statistically significant differences in health service utilization across respondents (for all individual factors except ethnicity) and statistically significant differences in mean health service utilization across respondent groups; (4) Statistical tests (regression analysis) confirm the significant influence of the three components of individual characteristics (predisposing, enabling, and need-related) on the probability and volume of health service use for the study population; (5) Statistical tests (regression analysis) confirm that personal health practices have an influence, although not large, on the probability of health service use and relative to the number of GP and specialist appointments.

The analysis done in this chapter illustrates convincingly (in theoretical and methodological terms) the integrity and connectivity between contextual and individual characteristics as a necessary condition for conducting a meaningful health consumption study. The dissertator's work here highlights his skills in designing and conducting research based on sophisticated statistical tests, as well as in summarising the results in a reasoned and competent manner.

d) Chapter Four ("*Discussion of Results, Conclusions and Recommendations*") summarises the results of the research conducted in the previous two parts on the utilisation of health services as a result of the influence of contextual and individual factors included in the Behavioural Model. It can be summarized that this study has a pioneering significance for our country, as it is the first time that a model that is well established and widely used in international and national studies has been tested with concrete data and in its entirety. This provides a broad and in-depth view of the determinants of health consumption. The overall picture of health service utilisation is built from the differentiated study of multiple and diverse factors, all related to people's motives and actions regarding their health. These are factors with different scope (macro and micro level), different source (environmental and individual factors), different cause (predisposing, facilitating, related to individuals' need), different nature (demographic, cultural, social, economic, geographical, psychological, etc.). As an analytical framework and tool, Andersen's Behavioural Model allows for a differentiated and collaborative exploration of the usability problem. This I think is the summarizing and central conclusion (in theoretical and methodological terms, also proven by testing the model with real data) of the dissertation research.

The scientific discussion of the results in this last chapter is by comparison with data from the literature (discussion). Adherence to the ethical requirement of transparency of results further strengthens the case for the 'technical' validity and applicability of the model, made in its selection and in the exploration of contextual and individual factors. Two comments can be made from this perspective: First, the relationship between contextual factors and usability is well established but also less well researched (p. 144), which highlights a significant research perspective (one that is missing in the recommendations for the applicability of the Behavioural Model, p. 162-163). The analysis and evaluation of the influence of contextual factors provide a rationale for measures aimed at optimizing the delivery of health services to the population. The measures listed as a conclusion of the study of contextual factors (pp. 145-146) should be consistent with the factors analysed in the model - general guidelines are given here only in a health policy context, and some of the measures are not directly derived from the analysis done in the text. Second, there is considerably greater scope for comparability with studies that consider usability against individual factors and health behaviours. I accept the discussion in section 4.2 of the significance of these factors as predictors of usability, but without the specificity of the results obtained, insofar as the representativeness of a poll is unproven.

Nevertheless, the summary findings on 'type of health service' is a very good illustration of the potential of the model to provide new, structured and comparable knowledge for health care purposes.

4. Scientific and applied contributions

The 5 contributions mentioned in the abstract (p. 63) define the theoretical-methodological and scientific-applied character of the dissertation research. I accept the dissertant's attempt to formulate them - it correctly reflects the main scientific results.

In assessing the content of the dissertation, specific scientific achievements are identified later in the review (here, section 3) and for each part of the dissertation. The contributions can be summarized and structured kind of like this:

- ***With a theoretical-methodological character:*** systematizing scientific knowledge (approaches, concepts, models) for studying the usability of health services; the use of the Behavioural Model for studying the usability of health services is argued as the most comprehensive, universal (internationally and nationally), and adequate structural-functional analytical framework for health consumption; introducing an additional significant contextual factor into the model and proving its significant influence on the usability of health services; testing (for the first time in Bulgaria) the Behavioural Model for studying the usability of health services based on a developed methodological toolkit for studying individual factors.

- ***In a scientific-applied context:*** the influence has been identified and 'mapped,' and a quantitative assessment of contextual and individual factors for the usability of health services has been made by applying the Behavioural Model; profile maps of the factors influencing the usability of health services have been created; guidelines have been outlined for a research program on the usability of health services in the country based on the Behavioural Model.

The mentioned contributions and achievements are the personal work of the dissertation author. There are significant opportunities for the continuation and expansion of scientific research (as indicated by the author in the final part of the dissertation, section 4.6).

5. Publications

The dissertation has not been published as an independent monographic study. The abstract lists a total of 4 independent publications on the dissertation topic (p. 47), all in Bulgarian. The publications were made in the period 2022 - 2023, i.e. during the PhD. Three of the publications are scientific articles in reputable peer-reviewed journals. The last publication is a scientific paper presented at the Sixth Scientific Conference of the Bulgarian Scientific Society of Public Health in May 2023 and published in the Journal of Biomedical and Clinical Research in 2023. The number and structure of publications meet the minimum national requirements for publication credits. The publications listed reflect milestones, results and achievements related to particular stages of the dissertation research.

The paper, Health Service Utilization Models (2022), presents a brief analytical comparative review of the models available in the scientific literature for health service utilization research. The object of comparison is the cognitive and predictive capacities of these models for studying people's motivation and health behaviour. On this basis, the complex nature of Anderson's behavioural model is argued.

The paper, "Determinants of Hospital Utilization" (2023), shares results from a study of determinants of hospital utilization. According to Anderson's behavioural model, the influence of selected variables that reflect individuals' predisposition to use such services, factors that facilitate such use, and the individual's need for health services are examined. The resulting statistical tests indicate the presence of statistically significant differences in respondents' use of hospital care with respect to the factors of age, employment status, trust in contractors, household income, and presence of chronic illness.

A key determinant of health consumption and behaviour is trust in healthcare providers (outpatient and inpatient). This is the subject of the next article, "Trust in the contractor as a factor influencing health service utilization in Bulgaria" (2023). The paper presents and discusses results that demonstrate that higher levels of trust are associated with higher utilization. Improving

communications and reducing distrust is a health policy challenge, as the result is adverse health outcomes for patients and ineffective health care.

A recent publication, *Utilization of Outpatient Health Services in Bulgaria (2023)*, outlines profiles of health care utilization based on Anderson's model. Amid a general increase in health service utilization relative to previous years, statistically significant factors that determine outpatient health service utilization emerge in two groups - (a) socioeconomic factors such as gender, age, location, health insurance status, location, and household income, and (b) need-related factors such as self-rated health and presence of chronic disease.

It is evident from the publications that they are not selected "extracts" from the finished text of the thesis but are stand-alone developments that provide a concrete analytical cross-section of the research conducted within the thesis. The research work carried out and results presented to the scientific community in reputable journals. There is a synchrony between research work on the topic and the publication work carried out. The publications present the PhD student as a researcher on a significant, modern, and important topic for health policy and health management.

6. Abstract

The abstract of the dissertation is printed in a separate booklet (total of 48 pages). It is written in Bulgarian and English. Compared to the dissertation, it is a carefully prepared, relatively self-contained text (it does not compile extracts of texts from the dissertation), which reflects in a synthesized way faithfully and accurately all the main points, ideas and results presented in the dissertation research. The abstract provides information about the relevance and significance of the research problem, the extent of its development in the scientific literature, the aims and objectives that shape the logic and content of the study, and presents fully and convincingly the author's solutions both in terms of methodology and the main scientific and applied results obtained. The content of the dissertation is presented in a synthesized manner, in the logical coherence of the individual parts, the main conclusions for each stage of the research are highlighted. The main emphasis in the text of the abstract is placed on the methodology of the study and the structured presentation of the results obtained. The text is clear, concise, readable and understandable. There are references to scientific innovations/contributions and to publications on the topic of the thesis.

7. Discussion and questions

The dissertation is an author's product, which testifies to high professional competence in the topic of the research, precision in the work and independence in scientific decision-making. In the course of his work, the dissertation demonstrates skills in empirical data analysis and theoretical generalizations. The approach taken in this review is to address all criticisms and recommendations 'at the point of origin' and these are set out in the preceding sections of the review. To these we add here some complementary comments and questions:

a. The problem statement "to provide recommendations for usability research and optimization". The recommendations in section 4.6 outline the directions of a research programme to investigate usability in the country based on the Behavioural Model, thus the first part of this task is correctly fulfilled. However, there is a lack of distinct and clearly delineated ones with respect to the second part of the task.

b. I disagree with the claim that the Behavioural Model "is based on a social-psychological approach" (p. 52). It is similar in idea, comparable in functional structure (factors and association), and aimed at explaining the causal relationships embedded in it with the evolving patterns of consumer behaviour in relatively the same period. This is evident in the retrospective review of different approaches to the study of health service utilisation and in the evolution of the model itself. It is no coincidence that, as the dissertation correctly points out, "the extent to which each component in the model influences usability will depend on the discretionary nature of the health service - the extent to which its use is a matter of personal choice" (p. 58). This comment directs attention to rethinking the purpose of the model - not only for health policy purposes, but also at the micro level (with utility for health market players). Along these lines and a question for the dissertator, what are the practical benefits, at different levels and for different actors in health care?

c. The behavioural model also sets another direction for health service utilization research. Some of these are summarized by the dissertation as causal relationships in the model (focus on health outcomes, "path analysis," feedbacks, p. 162). The dissertation illustrates the explanatory and predictive power of the model by examining the influence of individual factors in the three groups outlined: contextual characteristics, individual characteristics and health behaviours. The fact of clustering suggests their joint impact and the existence of interconnectedness between factors both within and across groups. This is important from both a research and applied perspective.

The topic of usability is not new and implies the confirmation of prior expectations related to the results reported in the dissertation of objective determinants. The dissertation itself encounters such a "stone" (conundrum) in the study of health behaviours and, in particular, personal health practices such as smoking and alcohol consumption. It is logical that these (definitively proven) are the cause of lower health status and higher health needs. Contrary to logic, the survey data suggest the opposite: more frequent alcohol consumption is associated with lower likelihood and fewer specialist and hospital appointments (pp. 141-142, 154); higher numbers of cigarettes smoked are associated with lower likelihood of GP and specialist referral (pp. 154, 157). Is this not due to the survey methodology used? If so, is there no other explanation? Is there confirmation of this discrepancy in the literature? What further research and more detailed analysis of behavioural risk factors does the dissertation recommend (p. 159)?

The dissertation completes only one stage of the researcher's efforts and the real challenge to the researcher is to continue to improve, correct and apply what has been done. The comments and recommendations mentioned in this review do not detract from the overall very positive impression of the dissertation presented and the qualities of a researcher convincingly demonstrated by the dissertator.

8. Conclusion

The presented dissertation project is devoted to a topical and significant topic in scientific and applied terms. The application of Andersen's behavioural model to the study of health service utilisation in our country outlines a (new for the country) large-scale research agenda. The dissertation is an original study, which is based on in-depth knowledge of the topic and broad empirical analyses. The dissertation demonstrates skills in theoretical analysis and modelling, and in-depth understanding of the complex processes it explores through the application of sophisticated statistical tools for data analysis. The dissertation research is strong evidence of the dissertant's ability to conduct independent scientific research, to pose a problem, and to plan, organize, and implement research whose results have high scientific and applied value. The main goal has been achieved and the specific tasks set in the development have been solved. Concrete contributions of theoretical and scientific-applied character have been obtained, which are the basis for the sustainability of the research and outline opportunities for development.

The foregoing gives me grounds to give a **positive evaluation** of the thesis. I recommend to the esteemed members of the scientific jury to support the decision **FOR awarding the PhD degree** in the professional field 3.7 "Administration and Management", doctoral programme "Organization and Management outside the sphere of material production (in health care)" to **Svetlana Krasteva Panayotova**.

22.01.2023, Sofia

Signature: _____

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