



**MEDICAL UNIVERSITY - PLEVEN**  
**FACULTY OF PUBLIC HEALTH**

**RESEARCH ACTIVITY OF NURSES AND MIDWIVES  
AND PROSPECTS FOR DEVELOPMENT**

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**ABSTRACT OF A DISSERTATION**

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Health Care Management

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Note: The numbers of the figures and tables in the abstract do not correspond to those in the dissertation.

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## Abbreviations used

<b>AACN</b>	<i>American Association of Nursing Colleges</i>
<b>ANA</b>	<i>American Nurses Associations</i>
<b>BAHPN</b>	<i>Bulgarian Association of Health Care Professionals</i>
<b>EFN</b>	<i>European Federation of Nurses Associations</i>
<b>ENRF</b>	<i>European Nursing Research Foundation</i>
<b>IF</b>	<i>Impact Factor</i>
<b>MHC</b>	<i>Management of Health Care</i>
<b>MU</b>	<i>Medical University</i>
<b>NACID</b>	<i>National Centre for Information and Documentation</i>
<b>NIH</b>	<i>National Institute of Health, USA</i>
<b>NINR</b>	<i>National Institute of Nursing Research, USA</i>
<b>WHO</b>	<i>World Health Organisation</i>

## INTRODUCTION

Each profession needs a theoretical basis and a set of knowledge necessary for its science-based practice. Scientific knowledge in different areas provides such a solid theoretical basis. Since the end of the 19th century, nursing as a profession has undergone a significant transformation and development, changing the acceptance of the society for its nature and comprehensiveness. The education of nurses and midwives also followed the natural course of change, development and improvement in line with new experiences in the social, economic and technological aspects. The accumulation of theoretical knowledge and the development of new professional competencies lays the foundations for the scientific development of nursing science and practice.

The research activity of nurses and midwives in developed countries is characterized by an remarkable advance. This is a natural response to the changing societal needs and the higher demands of patients for comprehensive and high-quality healthcare. It is well understood that the nursing profession provides much more than hygienic care for the sick, nutrition and manipulation. There is an increasing need for in-depth training in various fields of science, which correspond to the development of medical science, approaches to the treatment of patients and their care.

The education of nurses and midwives today is already at the university level, with a longer duration and follows established standards. The Global Standards for Basic Education of Nurses and Midwives of the World Health Organisation of 2009 stipulate that curricula should comply with national and international training criteria, as well as in line with core competencies. Core competencies include basic knowledge and skills for research aimed at the implementation of evidence-based health care. The development and introduction of bachelor's programmes, followed by master's and doctoral programmes in the field of health care, gives additional impetus to the development of research activity of these professionals.

The importance of research activity in the field of health care in developed countries has been proven over time in the international aspect, constantly evolving by expanding the scientific knowledge base, helping to determine the parameters of the profession and contributing to more effective and quality health care for patients.

Research activity among nurses and midwives in Bulgaria is a relatively new aspect in the field of health care. Responsibility to the patients, society and the profession requires reaching an adequate level of research in this area.

The goal of our study is in response to the need to collect comprehensive and reliable data on the current state of research activity of nurses and midwives in Bulgaria, to reveal the problems that hinder the development of this activity and to establish a model for its future development in accordance with the international experience.

The dissertation examines 6 universities that educate nurses and midwives and 8 multidisciplinary hospitals that serve as training facilities. By various sociological methods the groups of educators in the basic specialties "Nurse" and "Midwife", practicing nurses and midwives, and fourth-year graduate students in both specialties are included in the study.

On the basis of this complex research conclusions have been made and recommendations have been formulated. A curriculum for training a scientific circle in "Fundamentals of Scientific Research in Health Care" has been developed and tested. A SWOT analysis of research activity in healthcare was presented and together with a Delphi survey conducted with experts directly involved in the field, a Model for the development of research activity in healthcare was proposed, adequate to current international trends.

# I. PURPOSE, TASKS AND METHODOLOGY OF THE RESEARCH

## Purpose and tasks

**The aim** of this scientific research is to analyse the development of the research activity of nurses and midwives in Bulgaria for the period 2000-2020 and to propose a model for future development in accordance with European and international trends, that will create a basis for the introduction of evidence-based care and of innovative approaches in health care.

### **Tasks:**

1. To trace the development of the research activity of nurses and midwives in the USA and at the European level.
2. To study the publicly available information in our country about the research activity of nurses and midwives for the period 2000 - 2020.
3. To explore the opinion, competencies and experience of nurses and midwives in Bulgaria on research activity in health care.
4. To reveal the awareness of the nature and application of the standards of publication ethics by nurses and midwives in their research activity.
5. To establish the relationship between research activity of nurses and midwives in Bulgaria and the innovative methods and approaches in health care for the application in evidence-based health care.
6. To develop and test a curriculum for a scientific circle in "Fundamentals of research in health care" for students in Nursing, Midwifery and Health Care Management.
7. To propose a Model of research activity development for nurses and midwives, adequate to the current European and world trends in this field.

## Hypotheses

### **The following research hypotheses were stated:**

1. Health care research is directed primarily to various aspects of education and training, and not so much for improving the quality of health care provided.
2. Nurses and midwives have difficulties with research activity due to a lack of appropriate competences.

3. The development of research activity among practitioners in Nursing and Midwifery and among students is seriously hampered by a lack of interest and motivation for this activity.

4. Nurses and midwives are not familiar enough with the principles of publication ethics.

5. The low interest in research activity among nurses and midwives hinders the application of innovative methods and approaches in health care practice.

## MATERIAL AND METHODOLOGY

### Subject of the research

The subject of the study is the development of the research activity of nurses and midwives in Bulgaria.

### Object of the research

- ✓ *Nursing and midwifery educators in higher schools;*
- ✓ *Practicing nurses and midwives in university hospitals;*
- ✓ *4<sup>th</sup> year students before graduation in Nursing and Midwifery;*
- ✓ *Experts for Delphy survey.*

#### **Technical units of observation:**

• 6 Universities - MU - Pleven, MU - Varna, RU - Ruse, YU - Blagoevgrad, MU - Plovdiv, TU - Stara Zagora;

• Multiprofile hospitals for active treatment:

1. University Hospital “Dr George Stranski”, Pleven;
2. University Hospital “Saint Marina”, Pleven;
3. Hospital “Heart and Brain”, Pleven;
4. Kaneff University Hospital, Ruse;
5. University Hospital „Tzaritza Ioanna – ISUL“, Sofia;
6. University Hospital “Saint Anna”, Sofia;
7. University Hospital “Saint George”, Plovdiv;
8. “Saint Anna” Hospital, Varna.



## Study design

A comprehensive medico-social survey was conducted, covering the period from May 2020 to November 2021. Various sociological and statistical methods were used. The study was conducted in 4 stages:

During the **first stage** (May - November 2020), the available scientific literature on the historical development of research activity in health care in the United States, Europe and Bulgaria was studied, covering a variety of foreign and Bulgarian scientific literature on the emergence and development of research activity in health care, websites of universities in the United States and Europe, historical reviews on official websites of the WHO, international nursing and midwifery organisations, associations, federations (WHO, ICN, EFN, EFNR, etc.). Official international documents related to the basic education of nurses and midwives have been studied. Bachelor's and master's programmes for nurses and midwives abroad, normative documents in Bulgaria and other official documents are considered.

The publicly available information in the National Centre for Information and Documentation (NACID) register, related to the dissertations defended by nurses and midwives for the period 2000-2020, was studied.

The publications of nurses and midwives in the journals "Information for Nursing Staff" and "Health Care" for the period 2000 - 2020 were analysed. To extract information from the articles, two versions of registration cards for content analysis (for publications with and without own conducted research) were developed.

At the **second stage** (June - July 2020), three types of self-administered questionnaires were prepared and distributed to medical institutions in the country for questioning practicing nurses and midwives; to universities in the country, intended for educators and for 4<sup>th</sup> year students in nursing and Midwifery.

During the **third stage** (June - December 2022), a curriculum was developed and tested for the scientific circle in "Fundamentals of research in health care" with students in the specialty "Health Care Management". The results of self-administered questionnaires served as a basis for the development of the curriculum.

Within the **fourth stage**, a SWOT analysis of the status and development of research activity in health care by 2020 was carried out. A Delphi survey was conducted with experts to determine the main trends for future development and specific measures for each direction were proposed. Results from the SWOT analysis and Delphi survey were used to compile a **Model for the development of research activity in health care in Bulgaria**.

## Main characteristics of the surveyed groups

The ratio between the distributed questionnaires and returned by the separate groups of respondents by categories is presented in **Table 1**. Out of a total 1097 distributed questionnaires, 866 individuals (78.9%) responded, with the highest response rate among students (85.2%), followed by 79.3% for practitioners and 77.2% for the group of educators.

**Table 1** Response rate in the three surveyed groups (number, %)

	Sent	Responded	Response rate (%)
<b>Educators</b>	<b>82</b>	<b>65</b>	<b>79.3</b>
Medical University – Pleven	20	20	100.0
Medical University - Varna	13	13	100.0
South-West University “Neofit Rilski”	10	10	100.0
„Angel Kanchev“ University of Ruse	9	9	100.0
Trakia University – Stara Zagora	10	7	70.0
Medical University - Plovdiv	20	6	30.0
<b>Practicing nurses and midwives</b>	<b>799</b>	<b>617</b>	<b>77.2</b>
Kaneff University Hospital, Ruse	200	185	92.5
University Hospital “Saint Marina”, Pleven	80	69	86.3
Hospital “Heart and Brain”, Pleven	94	70	74.5
University Hospital „Tzaritza Ioanna – ISUL“, Sofia	100	78	78.0
University Hospital “Saint Anna”, Sofia	40	20	50.0
University Hospital “Saint George”, Plovdiv	50	40	80.0
“Saint Anna” Hospital, Varna	60	59	98.3
University Hospital “Dr George Stranski”, Pleven	175	96	54.9
<b>Students (nurses and midwives), 4<sup>th</sup> year of study</b>	<b>216</b>	<b>184</b>	<b>85.2</b>
South-West University “Neofit Rilski”	56	56	100.0
„Angel Kanchev“ University of Ruse	48	47	97.9
Trakia University – Stara Zagora	50	45	90.0
Medical University – Pleven	62	36	58.1
<b>Total</b>	<b>1097</b>	<b>866</b>	<b>78.9</b>

For the Delphi survey 18 experts were invited and 15 of the responded (the response rate 83.3%).

## METHODS OF STUDY

### Narrative Review

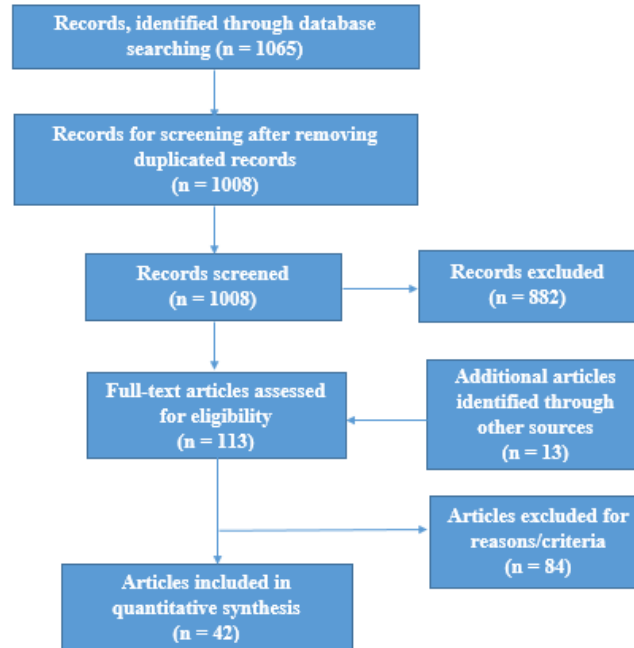
Narrative review is a type of literature review of available publications on a topic. The purpose of this review is to provide a descriptive overview of publications that follow the development of research activity in health care in the United States and Europe. Inclusion/exclusion criteria were defined. We performed a search in the bibliographic databases to which MU - Pleven has access and added PubMed by keywords (**Table 2**).

**Table 2** Search results for publications in selected bibliographic databases

<i>Key words</i>	<i>DATA BASES</i>							<i>Total</i>
	<i>EBSCO host</i>	<i>Web of Science</i>	<i>Science Direct</i>	<i>Scopus</i>	<i>OVID</i>	<i>Springer Link</i>	<i>PubMed</i>	
„Nursing research”	1 012	4 497	10 832	9 971	5	8 835	42 721	77 873
„Nursing research” AND “development”	13	831	7 750	3 044	7	5 946	13 625	31 216
„Nursing research” AND “evolution”	4	166	468	50	1	430	296	1 415
„Nursing research” AND “development” AND “evolution”	<b>4</b>	<b>71</b>	<b>396</b>	<b>138</b>	<b>1</b>	<b>338</b>	<b>117</b>	<b>1 065</b>

The results were retrieved with appropriate software applications. Conference abstracts and duplicate entries were manually removed. Finally, 42 articles that meet the criteria were chosen for inclusion in the descriptive review.

**Figure 1** illustrates the algorithm of the process of selection of publications that meet the author’s selected criteria.



**Fig. 1 Narrative review publication selection process**

### Sociological Methods

- **Documentary method.** Publicly available information from the Register of Academic Staff at the National Centre for Information and Documentation was studied. Individuals with a background in Nursing or Midwifery and an obtained educational and scientific degree "Doctor" over the period 2000-2020 were included. A specific questionnaire was developed to extract the information from documents.
- **Survey method.** To achieve the objective of the study, 3 types of survey questionnaires were developed: for nurses and midwives educators, for practicing professionals and for students majoring in Nursing and Midwifery, 4<sup>th</sup> year of study.

The questions are divided into the following information areas:

- Nature and interest in the research activity of the nurses and midwives;
- Preparation of nurses and midwives for research activity;
- Availability of own (of nurses and midwives) research activity;
- Publication ethics;
- Innovative methods and approaches in health care;
- Development of research activity of nurses and midwives;
- Identification data.

## Content Analysis

Content analysis is a method designed to identify and interpret the meaning in recorded forms of communication. In the present study, content analysis was applied to the publications of nurses and midwives in the journals "Health Care" and "Information for nursing staff" for the period 2000-2020. The methodology follows the main stages of the general procedure for performing content analysis.

## Delphi Survey

This is a method of collective assessment, which is widely used to identify problems, priority areas, forecasts and opportunities for development. The Delphi method is widely used in the management of decision-making process. It belongs to the group of qualitative methods for forecasting and has established itself as the relatively most reliable method for collective expert assessment. Recently, more and more foreign researchers in the field of health care are applying this method in their research and in many cases it is preferred because it is flexible and modifiable not only for research at the national level but also internationally.

## SWOT analysis

After receiving the results of the other applied methods, a SWOT analysis of the research activity of nurses and midwives was prepared. The strengths and weaknesses, opportunities and threats that support or could hinder for the development of research were summarized. The SWOT analysis contributed to the establishment of a **model for the development of research activity of nurses and midwives** in Bulgaria, adequate to European and global contemporary trends.

## Statistical Methods

The data processing was performed by software packages MS Office Excel 2019 and IBM SPSS Statistics v.25. The primary from were extracted from the Register of Academic Staff at NACID, reviewed articles in journals "Information for Nursing Staff" and "Health Care" and from self-administered questionnaires for the three studied groups of respondents.

Statistical significance of the differences was assessed using nonparametric tests  $\chi^2$  (chi-square). Differences at the level of probability  $P < 0.05$  in two-way tests were considered significant. Correlation relationships were assessed by Kramer's correlation coefficient.

## II. RESULTS AND DISCUSSION

### 1. Analysis of the development of research in the field of health care in the United States and Europe by publications - Narrative Review

Forty-two articles from USA and Europe were identified and included as the most appropriate in the analysis. According to the origin, 62.3% (n=27) of them are from USA states and 35.7% (n=15) are from European countries (**Table 3**). Most of the articles – 71.4% (n=30) were published after 2010.

**Table 3** Number of publications according to country of origin (state of USA) and year of publications

№	State of USA	N	Years of publication	European country	N	Years of publication
1.	Massachusetts	5	2001, 2015, 2016, 2017	United Kingdom	2	2011, 2018
2.	Colorado	1	2018	Sweden	2	2008, 2009
3.	California	1	2001	Spain	2	2001, 2017
4.	Pennsylvania	2	2005, 2010	France	2	2013, 2015
5.	Maryland	2	2014, 2019	Denmark	2	2015, 2019
6.	Texas	1	2018	Germany	1	2000
7.	New Jersey	2	2008, 2017	Finland	2	2016, 2019
8.	Washington	3	2008, 2018, 2020	Ireland	1	2018
9.	Nebraska	1	2019	Italy	1	2011
10.	New York	1	2007			
11.	Arizona	2	2018, 2020			
12.	Indiana	2	2014, 2018			
13.	Wisconsin	2	2012, 2018			
14.	Illinois	1	2000			
15.	North Carolina	2	2011, 2019			
	<b>Total</b>	<b>27</b>		<b>Total</b>	<b>15</b>	

The analysed articles were published in 22 nursing journals: 10 articles in the journal “Nursing Outlook”, followed by “Journal of Professional Nursing” with 8 published articles.

Most of the authors (n=31, 73.8%) were from universities or schools of nursing (as a part of university) and the others presented different organisation or research centres directly involved in nursing research.

During the review of the development of nursing research, five main topics of study were identified (**Table 4**).

**Table 4 Number of publications related to different topic of study**

<b>№</b>	<b>Topic of study</b>	<b>N (%)</b>
1.	Nursing research education	21 (50.5%)
2.	Organisational structures for nursing research, collaboration with clinical professionals	13 (31.0%)
3.	Research dissemination, publications and journals for nursing research	11 (26.2%)
4.	Nursing research trends and priorities	9 (21.4%)
5.	Funding nursing research	9 (21.4%)

\* The total number exceeds 42 (100%), because there were publications concerning more than one topic.

Summarizing the information from the articles ranges over the following important moments in the development of research activity in health care:

1. *Nursing research education*. Evolution began in the USA with the joining of nursing schools to universities and the development of bachelor's, master's, and doctoral programmes for nurses. Specific competencies are needed to conduct research by nurses for each educational level. Over the last 70 years, doctoral studies have undergone major transformations: Doctor of Nursing Science (DNS, DNSc or DSN), Doctor of Philosophy (PhD). As of 2011, there are 137 doctoral programmes in the USA. The education of university-level nurses in Europe was organized much later. The first attempts at research were made in Scandinavian countries in the early 1970s. At the same time, master's and doctoral programmes have been developed for nurses in Sweden and Finland. Academic training for health care educators in Germany began in 1963, but their inclusion in doctoral programmes did not begin until 1997. EU experts called on nurses for evidence-based practice.

2. *Organisational structures for nursing research and collaboration with practitioners*. The creation of organisational structures is a time-tested approach for management, support and development. In the field of health care, there is a need to expand cooperation and interdisciplinary activities related to research, teaching and learning. The National Research Centre was established in the United States in 1986, later transformed into the Institute (NINR) and it is currently one of the largest in the world. Repositories are also a kind of organisational structure. Sigma Theta Tau has an electronic library - the *Virginia Henderson Global Nursing e-Repository*. In 2019, a digital repository of doctoral dissertations in open access was established at George Washington University. "A Network for Young Scientists" is another example of organisational activity where nurses can rely on mentoring in their careers, and the network uses social platforms such as LinkedIn, Twitter and Facebook.

3. *Research dissemination, publications and journals for nursing research.* Joint efforts between medical schools and community agencies develop a "shared" occupational position. The aim is to "build a bridge" between training and practice so that evidence-based practice can be implemented. The first journal "Nursing research" was established in 1952. There was a strong expansion of publishing and an increase in the number of publications. Another important event was the creation of the Annual Review of Nursing Research in 1983, which is a critical analysis of research practice. Various initiatives are being taken to promote scientific development. For example, in Italy a database with free access to about 26 Italian journals was set up in 2006.

4. *Nursing research trends and priorities.* In 1985, the American Nurses Association (ANA) identified ten priority areas for research. Priorities were identified not only in specific clinical areas (oncology, emergency care, etc.), but also for development of theory, methodology and professional practice. In Europe, the priorities for research in the Nordic countries in 1995 include health promotion, management and care for the elderly. Some studies present a focus of interest within the nursing metaparadigm with the four areas (client, client-nurse, practice, and environment). The priorities in research in Sweden (2007) are aimed at preserving humanism, inter-organisational cooperation, preserving dignity in geriatric care and others. The main areas of research in France (2011) are nursing practitioners, education and management, and in Finland for the period 2012-2018 the focus is on the development of theories, methodology, advanced and professional practice.

5. *Funding nursing research.* Government support for funding nursing research in the USA dates back to 1950s. The establishment of the NINR is the culmination of the supporting process. More than 18 university centres are being set up in various disciplines (e.g. women's health, gender studies) for interdisciplinary research. In Europe, there was no clarity in 2001 on funding for nursing research. Improving research capacity and culture is essential for obtaining funding for research. In Germany, the Robert Bosch Foundation has established a programme to support doctoral students - nurses, research and education in master's programmes abroad. The French Ministry of Health launched the first national public funding programme for hospital research in 2010. At the same time, public hospitals began offering scholarships for doctoral nurses.

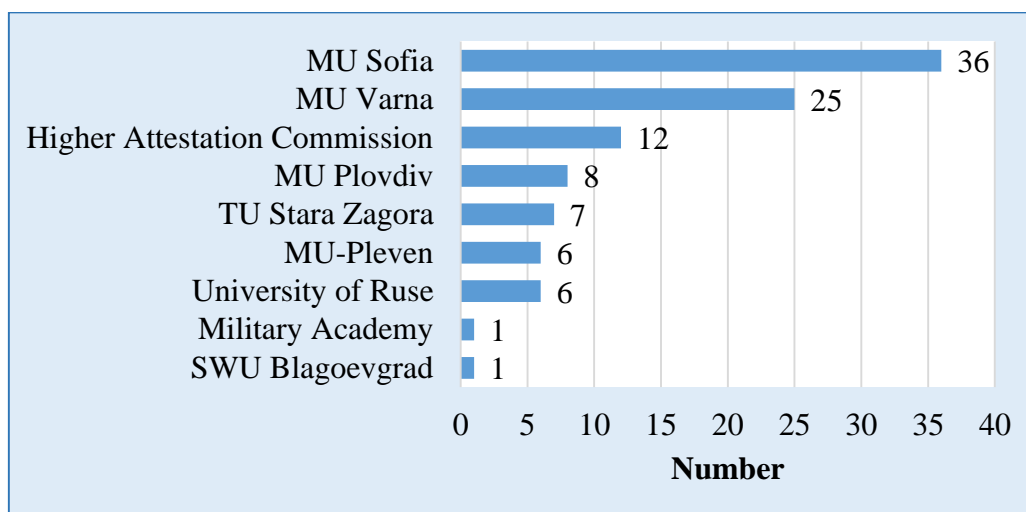


## 2. Characteristics of the dissertations of nurses and midwives in Bulgaria according to NACID

The available information in the public register of the academic staff in the National Centre for Information and Documentation (NACID) was reviewed in the research areas "Public Health" and "Health Care".

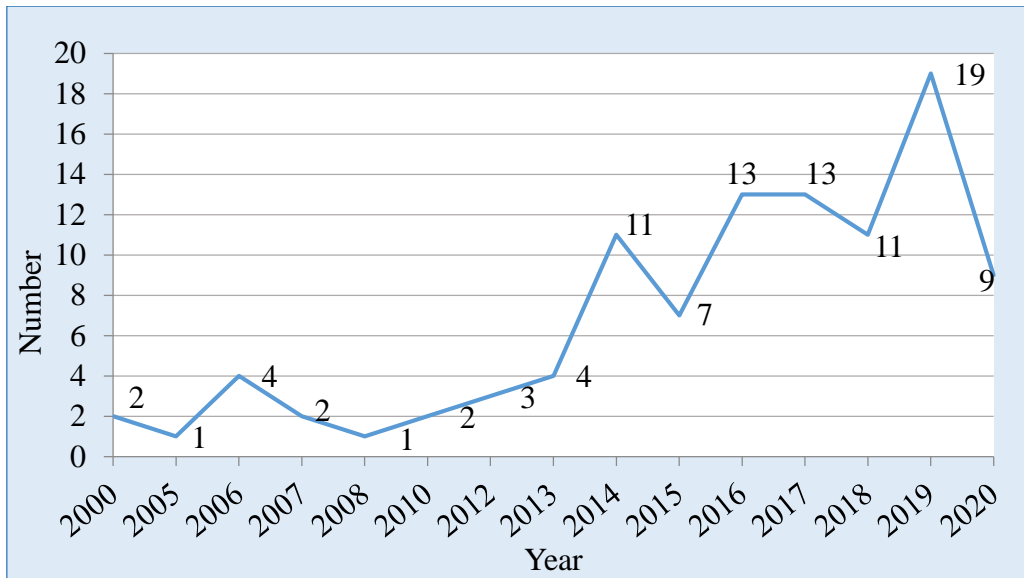
A total of **102** nurses and midwives were identified, who obtained the academic degree "Doctor" during the period from 2000 to 2020. The number of nurses is 80 (78.4%), and the midwives are 22 (21.6%).

Until 2010, the awarding of academic degrees and titles in Bulgaria was carried out by the Higher Attestation Commission and from 2000 to 2010 only 11 nurses and 1 midwife obtained a Doctor's degree. With the adoption of the new Law for the Development of Academic Staff in the Republic of Bulgaria (2010), the autonomy of higher education institutions for obtaining academic degrees was regulated. From 2010 to 2020, a total of 90 nurses and midwives acquired academic degree "Doctor" in various medical universities in the country. The summarized data for the period 2000 - 2020 showed that the largest number of defended dissertations was in MU - Sofia, followed by MU-Varna (**Fig. 1**).



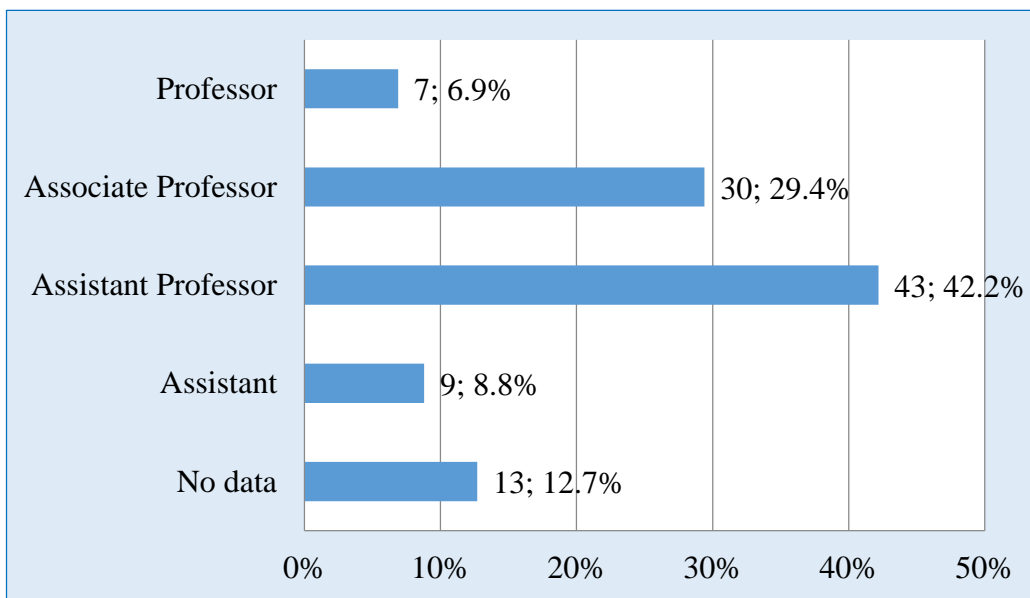
**Fig. 1** Number of dissertations defended by nurses and midwives by organisations over the period 2000-2020

The number of nurses and midwives with defended dissertations until 2010 was quite low, after which there was a remarkable increase in 2014, some decrease in 2015 and since 2016 there has been a fluctuating upward trend (**Fig. 2**).



**Fig. 2 Dynamics in the number of nurses and midwives who have obtained academic degree "Doctor" by years for the period 2000-2020.**

The NACID data also provided information on the academic position held by the respondents at the time of the study, presented on **Fig. 3**.



**Fig. 3 Distribution of individuals with dissertations by their current academic position**

It is clear that there was an intensive career development among nurses and midwives for the period up to 2020, which is a good testimonial for these professional groups.

The data analysis revealed that the areas of interest in Bulgarian dissertations were similar to the international ones. Basic and continuing education are among the first areas to be studied and are interesting, but even if we combine them into one group, they will not occupy the major relative part of the ranking. The research activity in these two groups examines the challenges of modern education, the formation of new competencies of learners and the application of innovative methods and approaches. The motivation for choosing a profession and for continuing education is another subject of research.

During the review of the topics of the dissertations and the annotations the following professional fields were formed, in which the dissertations were defended (**Table 5**).

**Table 5 Distribution of the topics of the dissertations in different fields**

<i>Nº</i>	<i>Topic of scientific interest</i>	<i>Nurses</i>	<i>Midwives</i>	<i>Total</i>
1.	Health care for adults with diseases	24 (30.0%)	2 (9.1%)	<b>26 (25.5%)</b>
2.	Health care education	9 (11.3%)	5 (22.7%)	<b>14 (13.7%)</b>
3.	Healthcare management in hospital care	8 (10.0%)	1 (4.5%)	9 (8.8%)
4.	Desease prevention	11 (13.8%)	6 (27.3%)	<b>17 (16.7%)</b>
5.	Healthcare management in out-of-hospital care	7 (8.8%)	5 (22.7%)	12 (11.8%)
6.	Research among practitioners	5 (6.3%)	1 (4.5%)	6 (5.9%)
7.	Health care for children with diseases	7 (8.8%)	0 (0.0%)	7 (6.9%)
8.	Continuing education of nurses and midwives	5 (5.0%)	1 (4.5%)	6 (5.9%)
9.	Other	4 (5.0%)	1 (4.5%)	5 (4.9%)
<b>Total</b>		<b>80 (100.0%)</b>	<b>22 (100.0%)</b>	<b>102 (100.0%)</b>

The dissertations concerning *health care for elderly people with diseases* are 25.5% (n=26) and occupy the largest proportion. as the first one was defended in 2014. They are focused on health care for serious diseases: diabetes, hypertension, multiple sclerosis, cervical cancer, acute myocardial infarction, abdominal trauma,

burns, benign prostatic hyperplasia, stroke, ischemic heart disease. Significance is also given to the spiritual care of patients as a part of the healing process.

In a separate group are 7 dissertations (6.9%), aimed at *health care for children with diseases*. Different aspects of care for children with serious diseases and of social importance were covered such as cerebral palsy, school-age diabetes, epilepsy, mental disorders, children with special needs and coping with stress in a hospital setting.

The second largest topic concerns *disease prevention*. A total of 17 nurses and midwives (16.7%) have defended dissertations on this topic mainly for the prevention of childhood diseases. Midwives, on the other hand, have focused on the prevention of cervical cancer, sexual health in adolescents, factors related to the decision for an abortion.

Nurses and midwives in Bulgaria are also interested in *healthcare management in hospital and out-of-hospital care*.

Nine dissertations (8.8%) were devoted to hospital healthcare management. Specific interest in hospital care include the quality of care, organisational forms, communicative competencies and resource management time of management.

The dissertations dealing with some aspects of the healthcare management in out-of-hospital care constituted 11.8% (n=12). Obstetric care in its various forms predominated in outpatient studies.

The organisation and different aspects of care outside the medical institutions were also among the topics of interest even though with small number of dissertations.

### 3. The publications of nurses and midwives in the journals "Health Care" and "Information for Nursing Staff" for the period 2000-2020.

#### Journal „Information for Nursing Staff“

During the period 2000-2020, the journal "Information for Nursing Staff" was published in 75 issues. From its inception until 2000, articles by other authors and other publications (such as translated materials) were predominantly published in the journal. Since 2006, detailed requirements for the authors of the submitted manuscripts about volume and layout, structure of the abstract, title, keywords and names of the authors have been published in English. Detailed instructions were also given for the correct spelling and arrangement of the bibliography, titles of tables

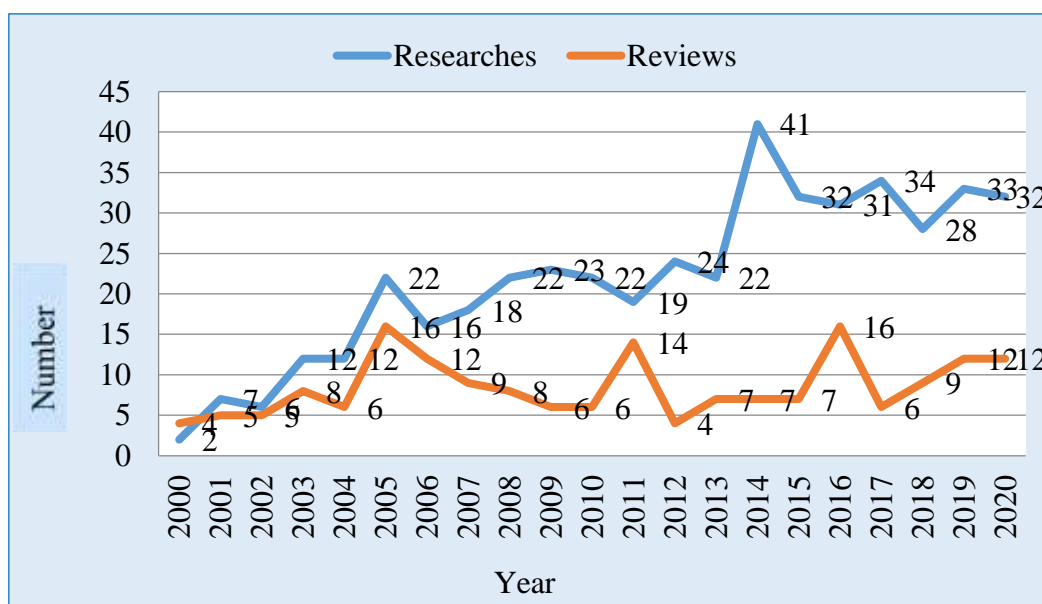
and figures and requirement to present names, full address and contacts. Since 2008, the journal has been published in bigger format and in larger volumes. Attention again has been put to the requirements for future referencing of the journal in foreign databases. Since 2008, readers can access the content of printed issues on-line.

### Journal „Health Care“

During the period 2003-2020 the journal "Health Care" has published in 69 issues. There were not only scientific publications, but also publications about various events related to healthcare professionals, scientific forums, conferences, and other issues.

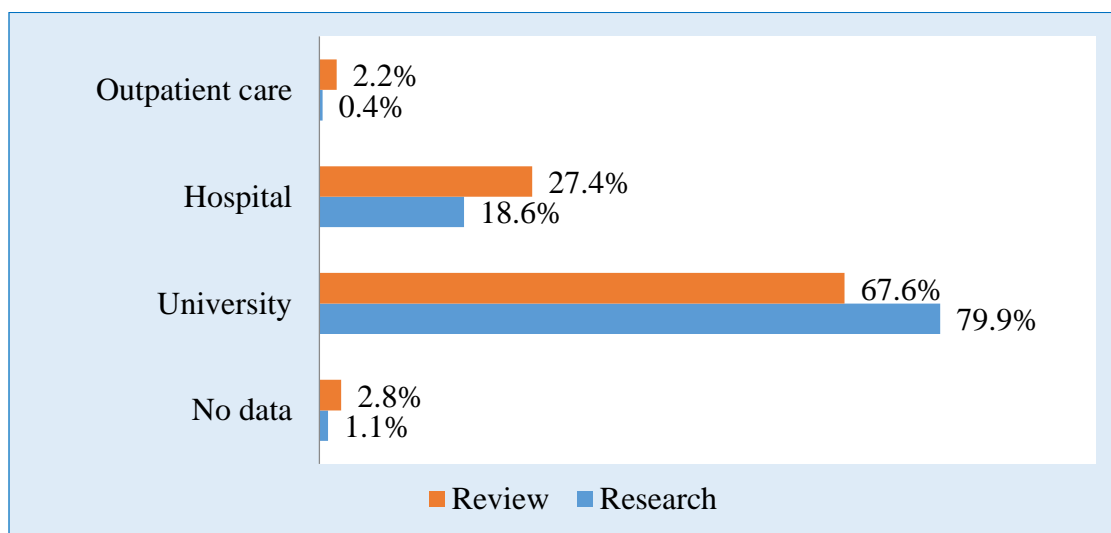
For the period 2000-2020, in the two journals nurses and midwives a total of 637 publications (independent or in co-authorship) have been published – 458 with conducted scientific research and 179 scientific reviews.

The trends presented in the number of the two types of publications in the period 2000-2020 (**Fig. 4**) show a relatively constant level in the reviews and more significant increase in the number of publications with surveys since 2014.



**Fig. 4 Dynamics in the number of articles in the journals for the period 2000-2020**

In the distribution of articles by the workplace of the first author (reflecting its professional status) the publications of educators prevaile. The presentations of the authors from the hospitals also make a good impression (**Fig. 5**).



**Fig. 5 Distribution of articles (in%) in the journals by the workplace of the first author**

The total number of publications of the authors from higher schools is 487 and that of the authors from hospitals - 134 or the ratio 3.6 to 1 (educators:practitioners), which underline an interest among the practitioners to publish in professional journals.

***There are three main types of review articles in journals:***

- Level of current development - development and current aspects of the profession and education; critical review of already published materials and new theoretical knowledge; role and place of nurses and midwives in health care;
- Historical article;
- Shared experience - publications to facilitate practice; application of innovative approaches in practice or training; organisation and management of health care (such as procedures for staff selection, control and evaluation); health projects; introduction of operational documents (e.g. protocols, algorithm), e.t.c.

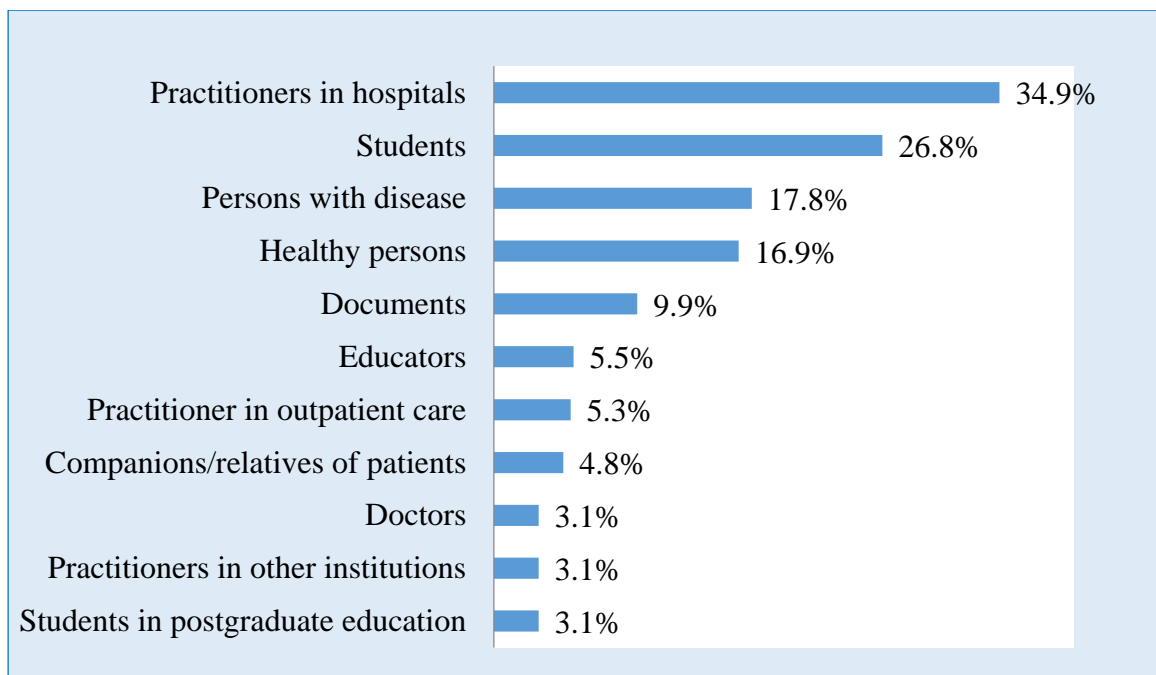
Essential for the practice are the publications concerning the roles of nurses and midwives in providing quality health care for individuals with different conditions or diseases. These articles summarize the scientific knowledge of specific activities that are within the competencies of nurses and midwives. Publications with shared experience provide useful information on news in practice and training and the authors' experience in the implementation of innovations.

### ***Publications of results from own research***

When analysing the publications with own research, we first determine the **object of research**. The variety of logical units is great, which underline an interest in studying different groups of people (**Fig. 6**).

Most often, objects of research are practicing health care professionals in hospital care (34.9%) and students from the basic education (26.8%), followed by 17.8% with the object of research “persons with disease” and 16.9 % with object “healthy persons”.

The diversity in the research objects is a good prerequisite for further development of research activity in health care. Nurses and midwives understand the importance of all participants in the process of providing health care. The documents regulating the normative framework of the activities and documents that serve as sources of data and evidence base for conducting research constitute 9.9% and also occupy a significant proportion in the ranking.



**Fig. 6 Research object in the studies of nurses and midwives according to the publications in Nursing and Health Care journals**

## What kind of research do nurses and midwives conduct and in what way?

Extracted information from the articles with conducted own research is synthesized in 7 groups related to the subject of study (**Table 66**). The diversity is great and the interests are focused on various aspects of health care, from training and professional competencies of nurses and midwives to the study of research and application of innovative approaches. Three of the categories are focused on patients identifying their needs and seeking feedback on the care provided.

The first three positions on the subject of the study are similar in both journals. with slight differences in ranking.

**Table 6 Subject of research in publications of nurses and midwives**

	(number, %)	
	„Information for nursing staff“ <i>n</i> = 202	„Health care“ <i>n</i> = 256
1. Education of nurses and midwives. student's competencies. continuing education	<b>63 (30.0%)</b>	<b>53 (19.8%)</b>
2. Health care – role of nurse and midwife. professional competencies of practicing nurses and midwives	<b>45 (21.4%)</b>	<b>78 (29.1%)</b>
3. Patients – awareness. level of knowledge among patients and relatives. patient satisfaction. characteristics. degree of dependence. needs	<b>53 (25.2%)</b>	<b>68 (25.4%)</b>
4. Healthcare management	16 (7.6%)	22 (8.2%)
5. Research activities in health care	2 (1.0%)	4 (1.5%)
6. Reasons for a phenomena among nurses and midwives. working environment conditions	25 (12.0%)	29 (10.8%)
7. Application of innovative approaches	6 (2.8%)	14 (5.2%)

*\*The sum of percentages exceeds 100%. because there are publications with more than one option*

In the journal "Information for nursing staff", the largest part of articles (30.0%) is related to the education of nurses and midwives and the professional competencies of students, while in the journal "Health Care" the first rank (29.1%) is for articles presenting results of studies on the role of nurses and midwives and the importance of professional competencies of practitioners.



One fourth of articles in both journals concern patients – their awareness, level of knowledge, patient satisfaction, characteristics, degree of dependence, needs, etc.

The survey method is most often used in the nurses' and midwives' research (86.6%). In 73 of the publications (15.9%) the documentary sociological method is used, but in most of the articles there is no exact explanation how it was used - no documents from which the initial data were extracted nor their analysis is described. Other publications incorrectly use the "documentary method" as a "study of the available literature on the problem", which is in fact a "literature review".

**Use of tables and graphics.** Regarding the visual presentation of the results of the research, the nurses and midwives have used tables and graphics to illustrate results of their research. In 154 (33.6%) of analysed articles the results were presented in tables and in 395 (86.2%) graphical presentations were predominant. In 33 (7.2%) of the publications no tables or graphics have been used to illustrate the results.

**Citation of literature sources.** The correct citation of the literary sources in the articles is a certificate for observance of the principles of publishing ethics. In 203 (44.3%) of articles presenting results of own conducted research there was no citation of the literary sources and in the reviews this proportion is even much higher (58.6%). Full citation was found in 127 (27.7%) of the research articles and in 35 (19.6%) of the reviews. The proportion of all publications with full citation in the studied articles is only 25.4% (162 out of a total of 637 analysed publications).

#### 4. Results of the surveys in the observed groups

##### 4.1. Main characteristics of the surveyed Individuals

It is seen that the educators are from all levels of academic development (**Table 7**). According to the educational degree, the largest part of nurses have acquired the educational and scientific degree "Doctor" (54.6%). More than a half of midwives (57.1%) have a master's degree and 38.1% possess the educational and scientific degree "Doctor".

**Table 7 Characteristics of the educators (number, %)**

Characteristic	Specialty ( <i>N</i> = 65)			
	Nurse		Midwife	
	Number	%	Number	%
<b>Last educational or scientific degree</b>	<b>44</b>	<b>100.0</b>	<b>21</b>	<b>100.0</b>
Bachelor	3	6.8	1	4.8
Master	17	38.6	12	57.1
Doctor	24	54.6	8	38.1
<b>Occupation</b>	<b>44</b>	<b>100.0</b>	<b>21</b>	<b>100.0</b>
Educator	11	25.0	4	19.0
Assistant	12	27.3	9	42.8
Assistant Professor	11	25.0	6	28.6
Associate Professor	10	22.7	1	4.8
Professor	0	0.0	1	4.8
<b>Work experience (in years)</b>	<b>44</b>	<b>100.0</b>	<b>21</b>	<b>100.0</b>
Up to 10 years	19	43.2	11	52.4
Between 10 and 20 years	13	29.5	2	9.5
Over 20 years	12	27.3	8	38.1
<b>Town of University</b>	<b>44</b>	<b>100.0</b>	<b>21</b>	<b>100.0</b>
Pleven	13	29.5	7	33.3
Ruse	5	11.4	4	19.0
Varna	9	20.5	4	19.0
Stara Zagora	7	15.9	0	0.0
Blagoevgrad	6	13.6	4	19.0
Plovdiv	4	9.1	2	9.5

At the time of the survey, most of the practicing nurses and midwives occupy regular positions (82.1% for nurses and 83.0% of midwives). Half of the nurses (51.0%) have a work experience of more than 20 years. while among the midwives prevailing are the groups with a work experience of “up to 10 years” and “over 20 years” (Table 8).

**Table 8. Characteristics of the practicing nurses and midwives (number. %)**

Characteristic	Specialty (N = 616)			
	Nurse		Midwife	
	Number	%	Number	%
<b>Last educational or scientific degree</b>	<b>504</b>	<b>100.0</b>	<b>112</b>	<b>100.0</b>
Bachelor	284	56.3	73	65.2
Master	142	28.2	23	20.5
Doctor	1	0.2	0	0.0
Doctor of science	0	0.0	0	0.0
Other	8	1.6	2	1.8
No answer	69	13.7	14	12.5
<b>Occupation</b>	<b>504</b>	<b>100.0</b>	<b>112</b>	<b>100.0</b>
Senior nurse/midwife	82	16.3	14	12.5
Head nurse	3	0.6	4	3.6
Registered nurse/midwife	414	82.1	93	83.0
No answer	5	1.0	1	0.9
<b>Work experience (in years)</b>	<b>504</b>	<b>100.0</b>	<b>112</b>	<b>100.0</b>
Up to 10 years	136	27.0	42	37.5
Between 10 and 20 years	108	21.4	30	26.8
Over 20 years	257	51.0	40	35.7
No answer	3	0.6	0	0.0
<b>Hospital</b>	<b>504</b>	<b>100.0</b>	<b>112</b>	<b>100.0</b>
UH “Saint George”. Plovdiv	33	6.5	7	6.3
“Saint Anna” Hospital. Varna	43	8.5	16	14.3
UH “Saint Marina”. Pleven	39	7.7	30	26.8
UH „Tzaritza Ioanna – ISUL“. Sofia	75	14.9	3	2.7
UH “Saint Anna”. Sofia	19	3.8	1	0.9
UH “Dr George Stranski”. Pleven	95	18.8	1	0.9
Hospital “Heart and Brain”. Pleven	64	12.7	6	5.3
Kaneff University Hospital. Ruse	136	27.0	48	42.8

\*UH – University Hospital

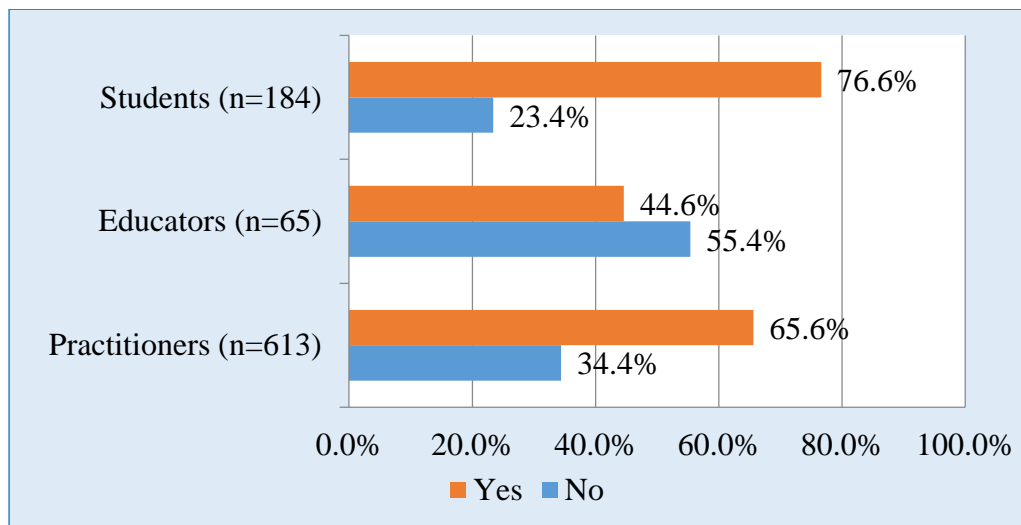
A total of 184 students at their 4<sup>th</sup> year of training from 4 universities are included in our research, which is enough representative for analyzing their opinion on the development of research activity in health care (**Table 9**).

**Table 9 Characteristics of the students majoring in Nursing and Midwifery, 4<sup>th</sup> year of study (number, %)**

Characteristic	Specialty (N = 184)			
	Nurse		Midwife	
	Number	%	Number	%
<b>Town of University</b>	<b>154</b>	<b>100.0</b>	<b>30</b>	<b>100.0</b>
Pleven	24	15.6	12	40.0
Ruse	47	30.5	0	0.0
Stara Zagora	43	27.9	2	6.7
Blagoevgrad	40	26.0	16	53.3

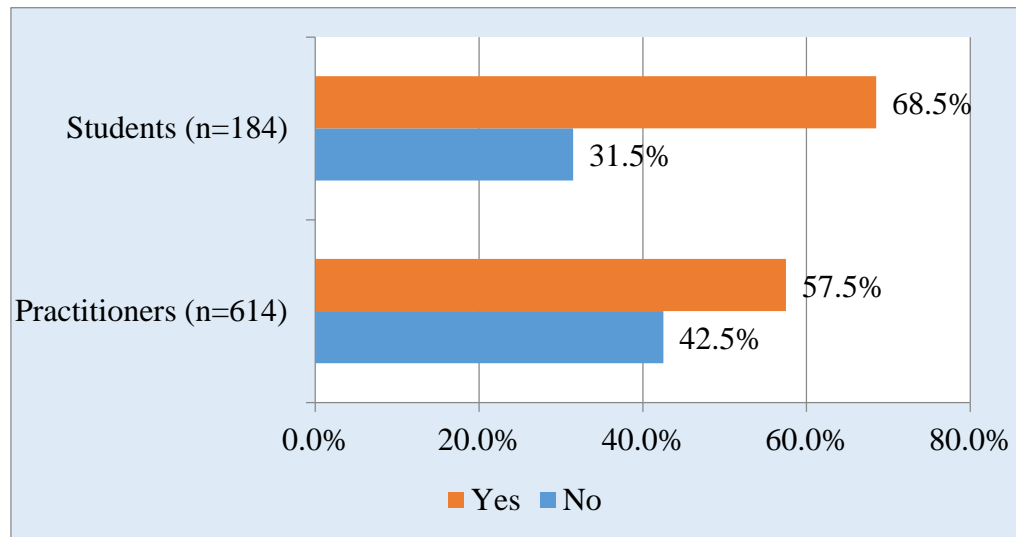
#### 4.2. Interest and desire for research activity in health care

One hundred forty four students (76.6%) and over 65% (n=402) of practitioners expressed positive opinion to the question "Are nurses and midwives interested in research activity in health care?" (**Fig. 7**). Educators demonstrated some skepticism on this issue and the negative answers had a slight predominance - 36 (55.4%) - ( $\chi^2 = 22.628$ ,  $df = 2$ ,  $p = 0.000$ ). This result could serve as a signal of interest among the groups of non-educators.



**Fig. 7 Opinion of the respondents on the question "Are nurses and midwives interested in research activity in health care?"**

Personal interest and desire for research activity have been declared by more than a half of non-educators with significantly higher proportion of for 4<sup>th</sup> year students as compared to practitioners (68.5% and 57.5% respectively). The difference is statistically significant ( $\chi^2 = 7.122$ ,  $df = 1$ ,  $p = 0.008$ ). This result confirms the above conclusion and underlines that the desire and interest in research activity should be used as a motivating factor for expanding research activity in clinical practice (**Fig. 8**).



**Fig. 8 Opinion of the respondents about their personal interest and desire for research activities**

We sought the opinion of the respondents to assess the level of research activity performed by the nurses and the midwives in the country (**Table 10**). The most critical was the opinion of the educators: 30.8% assessed it as "satisfactory"; there was only one answer "excellent"; 27.7% defined it as "good". and according to 32.3% of educators the level was "unsatisfactory". We found some diversity in the responses of nurses and midwives practitioners but as a whole their answers tend also to be negative.

**Table 10 Opinion of the respondents about the level of research activity in Nursing and Midwifery**

(number, %)

Level of research activity	Group			
	Practitioners	Educators	Students	Total
Excellent	46 (7.6%)	1 (1.5%)	41 (23.0%)	88 (10.3%)
Very good	96(15.8%)	5 (7.7%)	49 (27.5%)	150 (17.6%)
Good	169 (27.8%)	18 (27.7%)	60 (33.7%)	247 (29.0%)
Satisfactory	142 (23.3%)	20 (30.8%)	17 (9.6%)	179 (21.0%)
Unsatisfactory	156 (25.6%)	21 (32.3%)	11 (6.2%)	188 (22.1%)
<b>Total</b>	<b>609 (100.0%)</b>	<b>65 (100.0)</b>	<b>178 (100.0%)</b>	<b>852 (100.0%)</b>

All three groups of respondents gave a wide variety of answers to the question "What do you think nurses and midwives study most often?" (**Table 11**).

**Table 11 Opinion of the respondents on the subject of the study**

(number, %)

Subject of the study	Practitioners	Educators	Students
	<i>n = 601</i>	<i>n = 64</i>	<i>n = 178</i>
Learning process	211 (35.1%)	27 (42.2%)	90 (50.6%)
Professional competencies	241 (40.1%)	25 (39.1%)	90 (50.6%)
Other professional skills	141 (23.5%)	16 (25.0%)	45 (25.3%)
Role of nurse/midwife in health care	221 (36.8%)	38 (59.4%)	74 (41.6%)
Management of health care	129 (21.5%)	17 (26.6%)	30 (16.9%)
Causes of a phenomenon	39 (6.5%)	4 (6.3%)	18 (10.1%)
Dimensions of a phenomenon	37 (6.2%)	3 (4.7%)	31 (17.4%)
Patient satisfaction	169 (28.1%)	30 (46.9%)	41 (23.0%)
Satisfaction of nurses and midwives	155 (25.8%)	23 (35.9%)	31 (17.4%)
Research activity in health care	46 (7.7%)	3 (4.7%)	42 (23.6%)
Working environment conditions	196 (32.6%)	18 (28.1%)	31 (17.4%)

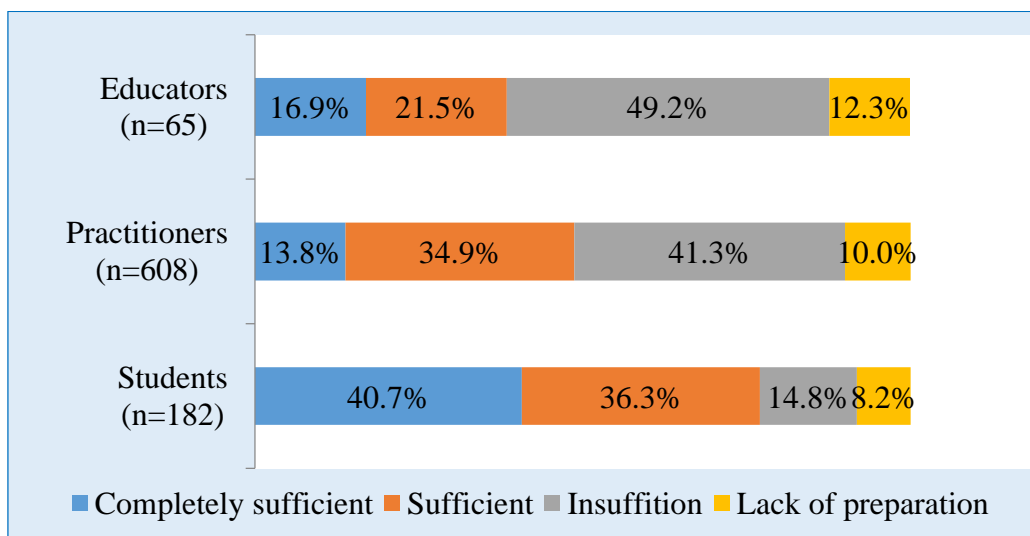
\* The sum of percentages exceeds 100%. because the respondents have chosen more than one answer

Practitioners consider the professional competencies as the most often studied (40.1%) in terms of their level and need for development, followed by the role of nurse/midwife in the process of treatment and recovery (36.8%) and almost the same proportion concerns to the educational process (35.1%). More than 1/3 of the respondents believe the working environment conditions are also frequently studied.

It was interesting to analyse the opinion of educators who are the most familiar with the research. About 60% of them pointed out that the role of nurse/ midwife in the process of providing care was most often studied. Patient satisfaction as a subject of study (46.9%) was ahead of the learning process and professional competencies (42.2% and 39.1%). According to more than half of the students, both the learning process and the professional competencies were most often studied (50.6%).

#### 4.3. Preparation of nurses and midwives for research activity in health care

The respondents' assessment of the theoretical and practical preparation of nurses and midwives for research activity showed statistically significant differences between different studied groups ( $\chi^2 = 85.895$ ,  $df = 6$ ,  $p = 0.000$ , Cramer's  $V = 0.0224$ ). The largest part of educators (49.2%) and practitioners (41.3%) defined the preparation for research activity as "insufficient" (**Fig. 9**). Next, both groups rated it as "sufficient" (21.5% and 34.9% correspondingly).



**Fig. 9 Respondents' assessment for the theoretical and practical preparation of the nurses and midwives for research activity**

The students, unlike the other two groups, evaluated the preparation of nurses and midwives for research very positively - 77% graded it as "sufficient" and "completely sufficient".

In all three groups of respondents there were approximately the same proportions of those who believed that there was a "lack" of preparation for research activity.

The recommendations and requirements of internationally recognised organisations such as WHO and the American Association of Nursing Colleges are that education for research in health care should begin at the early years of university training. The largest proportion of respondents supported the opinion that the acquisition of basic research competencies should really start at the basic nursing and midwifery education (**Table 12** ).

**Table 12 "When should the development for basic research competencies begin?"**

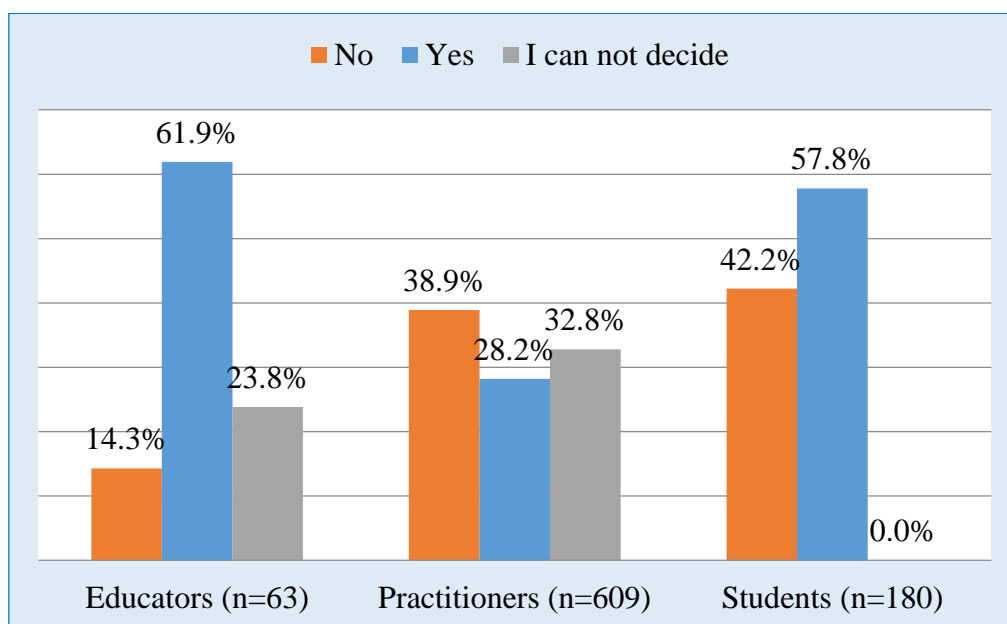
<b>When should the development for basic research competencies begin</b>	<b>Practitioners n=604</b>	<b>Educators n=65</b>	<b>Students n=180</b>
Nursing/midwifery Bachelor degree	286 (47.4%)	36 (55.4%)	63 (35.0%)
Bachelor degree in Management of health care	118 (19.5%)	11 (16.9%)	34 (18.9%)
Master degree in Management of health care	86 (14.2%)	16 (24.6%)	44 (24.4%)
Doctoral degree	40 (6.6%)	3 (4.6%)	22 (12.2%)
Continuing education	108 (17.9%)	4 (6.2%)	24 (13.3%)

\* The sum of percentages exceeds 100%. because the respondents have chosen more than one answer

Statistically significant differences were reported by the respondents in all three groups about the self-assessment for their own preparation for research activity ( $\chi^2 = 114.003$ ,  $df = 4$ ,  $p = 0.000$ , Cramer's  $V = 0.259$ ) (**Fig. 10**).

The educators who gave a definite positive answer made up 61.9%. and 23.8% of them could not judge. which is a clear evidence of insecurity. It was impressive that the high percentage of students thought they were prepared for research activity (57.8%). But the question is why when entering into practice their self-esteem drops so drastically. There was a high percentage of practitioners who definitely do not feel prepared (38.9%) and almost as many (32.8%) who cannot judge.





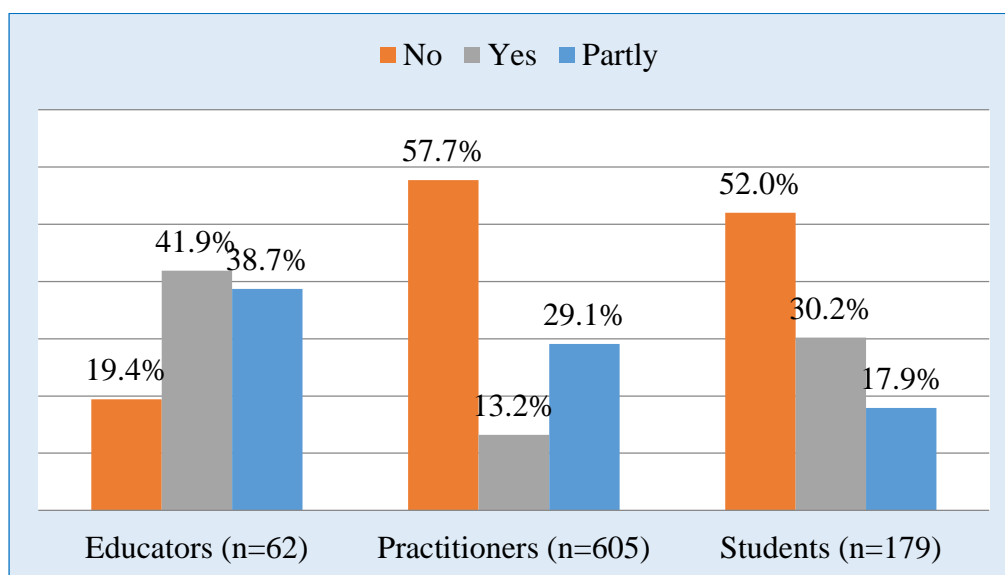
**Fig. 10 Self-assessment of respondents regarding their preparation for research activity**

Before analyzing the knowledge of respondents about the principles of publication ethics, we studied the publishing experience of educators and practitioners. A total of 60.3% of nurses and midwives practitioners did not undertake such attempts, but there were 144 persons (19.0%) who have participated in publications as students in basic education (probably as co-authors).

#### 4.4. Publication ethics of nurses and midwives

When conducting scientific research and publishing the results obtained, it is important to observe ethical principles, rules and generally accepted modern standards. Knowledge of the recommendations of the **International Committee of Medical Journal Editors (ICMJE)** and the Committee of Publishing Ethics to publishers on requirements and ethical norms on originality, plagiarism, objectivity of results, conflict of interest, etc., is an important step in the development of research activity in health care.

Slightly more than half of the practitioners (57.7%) and students (52.0%) answered that they were not familiar with the standards of publication ethics of ICMJE (**Fig. 11**).



**Fig. 11 Knowledge of the standards of publication ethics of ICMJE**

In contrast to these two groups, the largest proportion of educators expressed the opinion that they were familiar with the standards - 41.9% “yes” and 38.7% “partly”. Nevertheless, this percentage of positive answers among the educators is quite low for individuals whose main responsibilities corresponding to their professional status include conducting research and publishing results. Fifty four students (30.2%) showed confidence by answering positively to the same question. The differences in the opinion between the three groups of respondents are highly significant ( $\chi^2 = 65.683$ ,  $df = 4$ ,  $p = 0.000$ , Cramer's  $V = 0.196$ ).

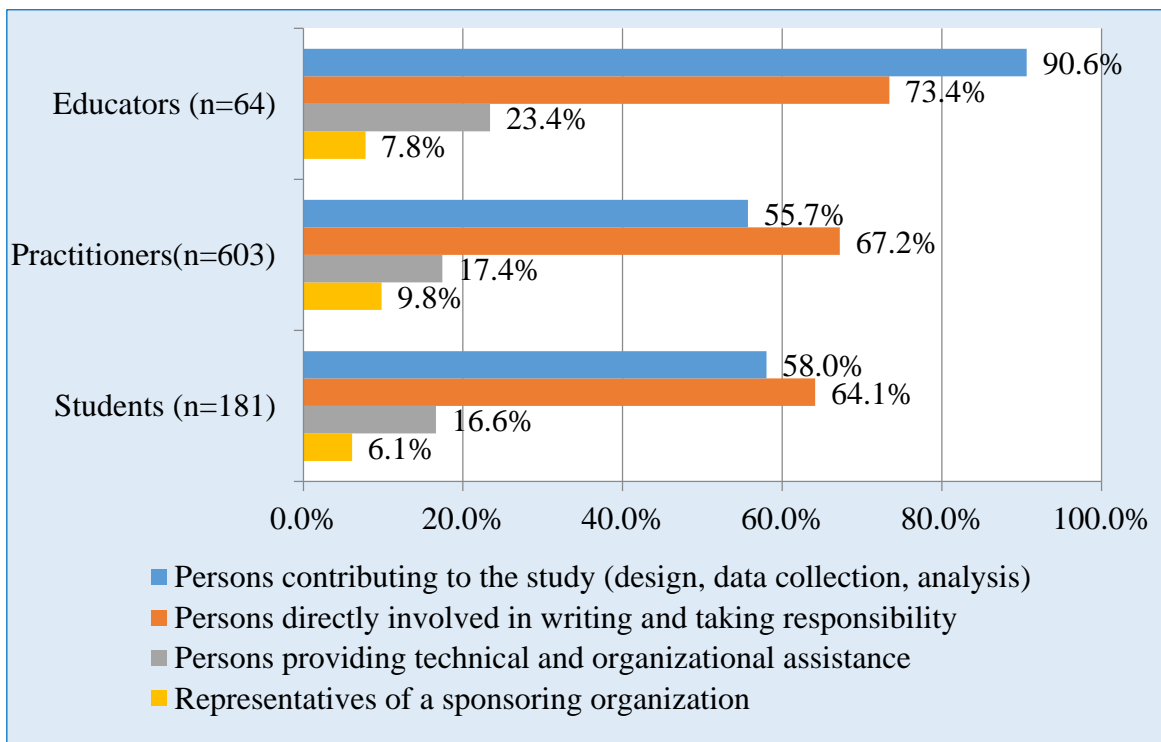
In order to check the respondents’ in-depth knowledge about the publication ethics, their opinion was sought on additional issues. According to 81.0% of the educators and less than half of the surveyed practitioners and students, the main recommendations and requirements of ICMJE refer mostly to the "authors" (**Table 13**). This is a clear evidence for very restricted views of respondents about publication ethics.

All educators completely excluded “journal owners” as a possible answer. In all three groups there were some people who believe that there are recommendations and requirements for "research funding organisations".

**Table 13 According to the respondents. to whom do the ICMJE recommendations refer?**

The ICMJE recommendations concern:	(number, %)		
	Practitioners <i>n</i> = 595	Educators <i>n</i> = 63	Students <i>n</i> = 181
Authors	274 (46.1%)	51 (81.0%)	92 (50.8%)
Publishers	78 (13.1%)	19 (30.2%)	48 (26.5%)
Editors	122 (20.5%)	28 (44.4%)	49 (27.1%)
Peer-reviewers	80 (13.4%)	32 (50.8%)	26 (14.4%)
Journal owners	37 (6.2%)	0 (0.0%)	12 (6.6%)
Sponsoring institution	62 (10.4%)	7 (11.1%)	19 (10.5%)
I can't answer	222 (37.3%)	10 (15.9%)	43 (23.8%)

The opinion of the respondents on the question “Who can be a member of the author's team” is presented at **Fig. 12**.



**Fig. 12 Opinion of the respondents about authorship**

Although all the respondents indicated that "persons contributing to the study" and "persons directly involved in writing and taking responsibility" as appropriate members of "for the content", there were some differences between the groups.

The majority of educators (90.6%) indicated “persons contributing to the study”. The practitioners and students ranked at the first place “persons directly involved in writing and taking responsibility for the research”. Lower proportions of answers in both groups of respondents in favour of persons contributing to the study evidence for misunderstanding the basic criteria for authorship. The support of educators to vicious practices of attributing authorship to individuals who provide only technical and organisational services is also worrying.

In conclusion, it can be said that the majority of responders are not enough acquainted with the criteria for authorship.

To study the awareness about violations of publication ethics, we firstly asked the respondents "Which of the listed violations of good publishing practice are you familiar with?" (**Table 14**).

**Table 14 Knowledge of violations of good publishing practice (numbers, %)**

Violations of good publishing practice that you know	Practitioners <i>n = 608</i>	Educators <i>n = 62</i>	Students <i>n = 181</i>
Fabrication (composing results)	<b>178 (29.3%)</b>	27 (43.5%)	<b>75 (41.4%)</b>
Falsification of results	<b>183 (30.1%)</b>	<b>30 (48.4%)</b>	<b>75 (41.4%)</b>
Plagiarism (borrowing from a foreign scientific idea)	<b>255 (41.9%)</b>	<b>36 (58.1%)</b>	<b>76 (42.0%)</b>
Deliberate omission of negative results	87 (14.3%)	13 (21.0%)	28 (15.5%)
Repeated publication of the same scientific material	156 (25.7%)	24 (38.7%)	38 (21.0%)
Incorrect citation of other authors	128 (21.1%)	<b>33 (53.2%)</b>	35 (19.3%)
Undeclared conflict of interest	39 (6.4%)	9 (14.5%)	20 (11.0%)
Inclusion of persons who do not meet the criteria as an author	70 (11.5%)	16 (25.8%)	17 (9.4%)
I am not aware of any of these violations	174 (28.6%)	7 (11.3%)	37 (20.4%)

In all three groups, the largest proportion of respondents pointed out the “plagiarism” (from 58% to 42%). Second and third ranks were for “falsification of results” (48% to 30%) and for “fabrication of results” (43.5% to 29%). Over 50% of educators also recognised as a very serious violation the “incorrect citation of other authors”, while in the groups of practitioners and students this type of violation was underestimated.

Additionally, we asked the respondents "Which of the following violations of good publishing practice have you encountered in publications of nurses and midwives?" As a whole, the most commonly occurred violations were of the same types as shown in table 14 with some differences in their ranking between the groups of respondents.

According to the educators who are the most involved in scientific work very common violations were: *"incorrect citation of other authors"* (31.7%), *"inclusion in the author team of people who do not meet the criteria"* (28.6%) and *"repeated publication of the same scientific material"* (22.2%) together with *"falsification of results"*, which can be most easily identified by other colleagues.

According to the practitioners, the most common violations were *"plagiarism"* (28.8%), *"fabrication (creation) of results"* (25.6%) and *"falsification (adjustment) of results"* (23.7%). However, we do not have exact information on the source of the opinion shared and how objective it is.

In conclusion, the problem concerning violations of publication ethics has not been studied in our country and there is a need for more in-depth independent research by specific methodology that allows comparing the subjective opinion of respondents with expert assessments of published scientific papers.

#### 4.5. Application of innovative methods and approaches in practice

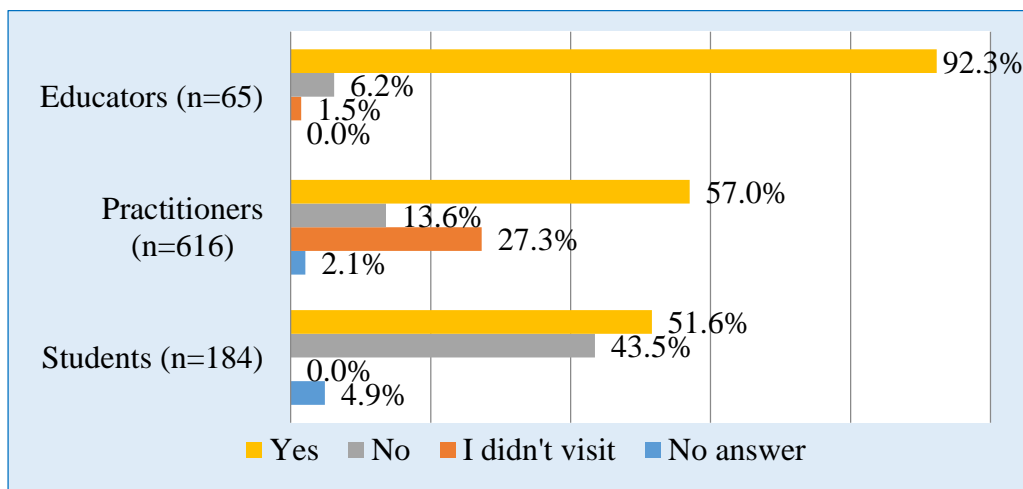
Respondents receive information about innovative methods and approaches in health care from various sources. Almost all educators (95.4%) cited publications in professional journals as a main source of information. The largest number of individuals in the other two groups also indicated the same source of information, but in a relatively lower percentages. Next, the scientific forums were ranked as a source of information with small differences between the three groups. The colleagues and the direct supervisors were also perceived as an important source of information.

Among the practitioners 85.2% believed that participation in scientific forums can be a form of acquiring new knowledge.

This result is not to be overlooked and should be given more attention by employers. Various initiatives to encourage and to support the participation of employees in scientific forums can benefit not only the improvement of the quality of health care, but also the development of human resources in the organisation.

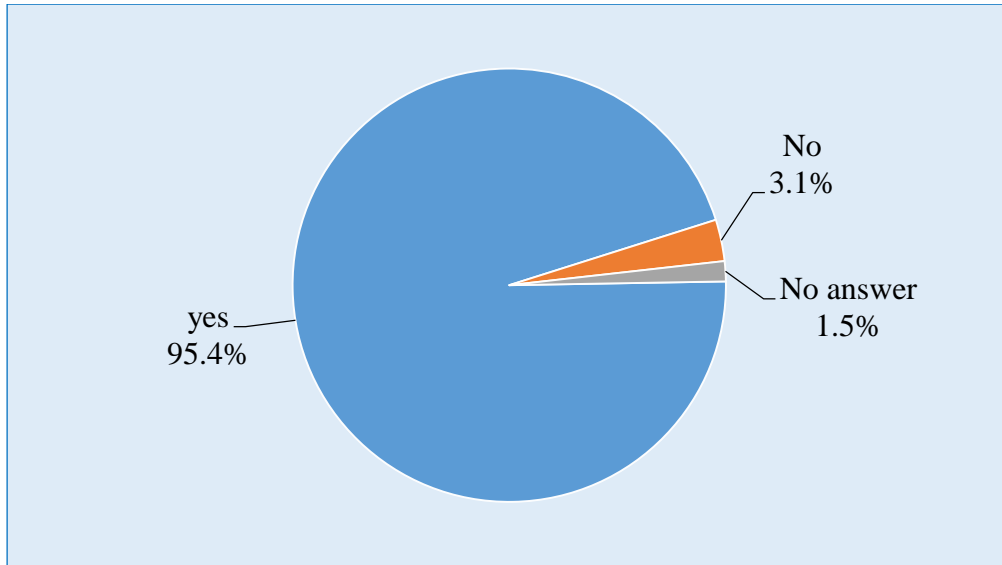
Positive answer to the question *"Do you have cases of visits to scientific forums where you have learned about innovative methods and approaches in health care?"* was given by 60 educators (92.3%). The answers of students were divided almost in half with a slight prevalence of positive opinion (95 - 51.6%), as it is shown in **Fig. 13**.

Most of the practitioners (57.0%) pointed out that they have learned about innovative methods and approaches at a scientific forum. But at the same time 27.3% of them have never participated in a scientific forum.



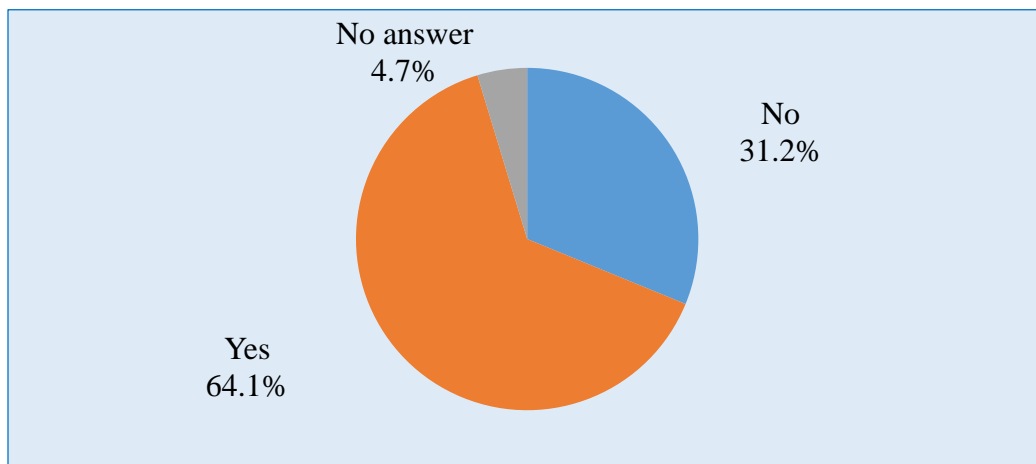
**Fig. 13 Getting acquainted with innovative methods and approaches in scientific forums**

To follow what is happening with the acquired information about the innovative methods and approaches, we asked the educators if they have provided such information to the students they teach. The result showed that 95.4% of the respondents answered affirmatively, which is an optimistic signal about the possibility for dissemination of information on innovations to the students during the their basic training (**Fig. 14**).



**Fig. 14 Providing information to students about innovative methods and approaches**

The evidence-based health care can be achieved by applying the results of studies, including innovative methods and approaches in practice. This process requires specific competencies, as well as appropriate working conditions. We found it quite optimistic that 64.1% of practitioners have tried to apply some innovative methods and approaches in their practice. Although it is not known how successful these attempts had been, the result in itself suggests that there is a positive attitude and readiness to implement such initiatives (**Fig. 15**).



**Fig. 15 Practitioners' attempts to apply innovative methods and approaches in their practice**

#### 4.6. Problems, motives and future development of research in health care

When studying the state of research activity, it is important to look for the problems that hinder its development. **Table 15** presents the main factors that hinder the development of research activity in health care according to the surveyed groups.

All the respondents expressed agreed on one most important reason - the *lack of time in situation of insufficient number of staff*.

Over the last 20 years, the crisis related to chronic staff shortages has deepened. The increasing number of newly opened health institutions and other medical practices creates great difficulties in the process of providing quality health care to patients. At present, nurses and midwives often have to work part-time, take on day or night shifts themselves and find it difficult to fulfill their basic work duties. These conditions are exacerbated by the COVID-19 pandemic, when a great number of medical staff get ill, take sick leaves or are quarantined. In such circumstances, it is difficult to think about devoting some time to conduct research.

**Table 15 Main factors that hinder the development of research in health care**

Factors that hinder the development of research	(number, %)		
	Practitioners <i>n</i> = 595	Educators <i>n</i> = 64	Students <i>n</i> = 180
Lack of time	<b>447 (75.1%)</b>	<b>43 (67.2%)</b>	<b>109 (60.6%)</b>
Lack of colleagues' support	97 (16.3%)	11 (17.2%)	41 (22.8%)
Lack of support from managers	115 (19.3%)	20 (31.3%)	42 (23.3%)
Insufficient knowledge and skills	149 (25.0%)	<b>36 (56.3%)</b>	48 (26.7%)
Lack of funding for research	<b>181 (30.4%)</b>	27 (42.2%)	<b>51 (28.3%)</b>
Lack of standardized documentation	79 (13.3%)	29 (45.3%)	0 (0.0%)
Lack of motivation /non-assessment	<b>218 (36.6%)</b>	<b>35 (54.7%)</b>	<b>52 (28.9%)</b>
Poor knowledge of a foreign language	98 (16.5%)	27 (42.2%)	24 (13.3%)
Insufficient computer literacy	51 (8.6%)	7 (10.9%)	27 (15.0%)
Other	0 (0.0%)	1 (1.6%)	4 (2.2%)

*The lack of funding for research* was indicated by 30.4% of practitioners and 28.3% of students. However, the educators placed funding only in 5<sup>th</sup> place (42.2%), almost equal to *poor knowledge of a foreign language* and the *lack of standardized documentation*. We may assume that the respondents are aware that funding for research activity is provided only at the institutions for higher education as one of



the mechanisms to support, stimulate and promote the scientific activity of the academic staff. No opportunities to financing the research in hospital health care are provided.

*Lack of motivation and non-evaluation of the efforts made* was the second factor pointed out by 36.6% of practitioners and third one according to 57.5% of educators and 58.9% of students. This leads to the conclusion that the research activity of nurses and midwives is still not perceived as part of the new role of health care professionals and as a significant activity for the development and improvement of the quality of health care in the modern society.

*Lack of standardized documentation.* Less than half of educators (45.3%) cited this reason as important, which is a relatively low proportion. They should know well the true value of documents and their importance for scientific work. None of the students indicated this answer and it may be thought that students really do not understand the essence of the concept of "standardized documentation" and its meaning.

*Insufficient knowledge and skills for research activity* is another major obstacle. One fourth of the educators were aware of its importance and have mentioned it in second place. At the same time, for practitioners and students this was the fourth obstacle. This fact confirms once again that nurses and midwives have a deficit in their research competences, which inevitably has an adverse effect.

*Insufficient computer literacy* was considered as the least common cause by all three groups of respondents. Such result sounds positive, but unconvincing if the the rwspondents have real idea of the importance of these skills for research.

#### *Perspectives for the development of research activity in health care in the next 10 years*

The opinion of nurses and midwives on the future development of research activity in the next 10 years was also studied. The largest proportion of practitioners (31.5%) and educators (47.7%) supported the opinion that research will be performed mainly by educators. This result is not optimistic for the development of scientific research in clinical practice (**Table 16**).

**Table 16 Perspectives for the development of research in health care in the next 10 years**

Perspectives	(number, %)		
	Practitioners <i>n</i> = 584	Educators <i>n</i> = 64	Students <i>n</i> = 172
It will be developed at a rapid pace	97 (15.7%)	11 (16.9%)	<b>95 (51.6%)</b>
There will be delayed development	<b>132 (21.4%)</b>	10 (15.4%)	38 (20.7%)
Expanding the areas of research	120 (19.5%)	<b>23 (35.4%)</b>	<b>64 (34.8%)</b>
It will be performed mainly by educators	<b>194 (31.5%)</b>	<b>31 (47.7%)</b>	34 (18.5%)
Increasing research in hospital care	96 (15.6%)	10 (15.4%)	47 (25.5%)
Increase research in outpatient care	45 (7.3%)	7 (10.8%)	34 (18.5%)
Other	14 (2.3%)	0 (0.0%)	0 (0.0%)

On the second place, the practitioners pointed out “delayed development in research activity”. These answers were supported by the results presented above when more than a half of practitioners estimated their preparation for research as “insufficient” or “lacking” and more than 2/3 did not feel prepared or they could not assess it. The choice of such answer was in line with the main obstacles for the development of research activity which respondents indicated: lack of time in conditions of insufficient staff, lack of motivation and evaluation, lack of funding and insufficient knowledge and skills for research.

In order to get a clear idea of what measures and actions are needed for further development of research, it is also important to take into account the opinion of the respondents on this issue (**Table 17**).

The need for "more in-depth knowledge and skills for research activity" was ranked first by all the respondents (73.8% of educators. 61.4% of students and 50.0% of practitioners) and considered as a serious impetus to the development and providing evidence-based health care.

**Table 17 What is needed for the further development of research according to the respondents**

<b>What is needed for the further development of research?</b>	Number, %)		
	<b>Practitioners</b> <i>n = 586</i>	<b>Educators</b> <i>n = 65</i>	<b>Students</b> <i>n = 173</i>
Additional knowledge and skills for research	<b>308 (50.0%)</b>	<b>48 (73.8%)</b>	<b>113 (61.4%)</b>
Greater cooperation with educators	178 (28.9%)	<b>35 (53.8%)</b>	61 (33.2%)
Introduction of standardized documentation for registration of care	132 (21.4%)	<b>31 (47.7%)</b>	0 (0.0%)
Support and cooperation from the leader	189 (30.7%)	34 (52.3%)	37 (20.1%)
Financial stimulation	<b>271 (44.0%)</b>	<b>25 (38.5%)</b>	<b>62 (33.7%)</b>
Other	12 (1.9%)	2 (3.1%)	1 (0.5%)

For 44.0% of practitioners and for 33.7% of students “material incentives” were the second most important factor. For educators “greater cooperation with educators” (53.8%) was assessed as the second factor to stimulate further development of research, followed by “support and cooperation from managers” (47.7%). International experience clearly shows that serious financial support was needed and a basic prerequisite for initiating and conducting research in health care. Almost half of the educators (47.7%) and about 1/5 of the practitioners assessed also the importance of the standardized documentation for registered care.

## 5. SWOT analysis of research activity in health care

### **Strengths:**

- ✓ Availability of nurses and midwives with doctoral degree and good experience for research in health care
- ✓ Normative regulation of research in health care (availability of national and professional documents)
- ✓ Existing specialized journals for publications
- ✓ National Consultant on health care at the Higher Medical Council
- ✓ Expert Council on Health Care under the Minister of Health

### **Weaknesses:**

- ✓ There is no national strategy for the development of research activity in health care
- ✓ Research activity is performed mainly by university educators
- ✓ Insufficient theoretical and practical preparation for research
- ✓ Lack of targeted funding for research in health care

### **Opportunities:**

- ✓ Creating positive attitudes and interest in research since basic education
- ✓ Measures to stimulate and encourage practitioners for research in clinical practice
- ✓ Establishment of a complex database or register of research in health care

### **Threats:**

- ✓ Difficulties in understanding the importance of research activity for health care in practice
- ✓ Presence of prejudices about the lower scientific value of research in health care
- ✓ Insufficient targeted funding
- ✓ Lack of incentives

## 6. Curriculum for scientific circle "Fundamentals of research in health care"

Based on the results of the survey on preferred knowledge and skills for research that should be acquired at the basic education, we develop and test a Curriculum for a scientific circle "Fundamentals of research in health care" (**Table 18**).

**Table 18 Preferred knowledge and skills for research to be acquired by students during their basic education**

Knowledge and skills for research to be acquired during the basic education	(number, %)		
	Practitioners	Educators	Students
	n = 582	n = 62	n = 176
Analysis of literature data	175 (30.1%)	<b>48 (77.4%)</b>	<b>68 (38.6%)</b>
Types of research and methods	<b>283 (48.6%)</b>	<b>37 (59.7%)</b>	<b>87 (49.4%)</b>
Identifying of a research problem	145 (24.9%)	33 (53.2%)	62 (35.2%)
Defining the purpose of the study	161 (27.7%)	33 (53.2%)	61 (34.7%)
Formulation of hypotheses	110 (18.9%)	24 (38.7%)	48 (27.3%)
Data collection for research	<b>220 (37.8%)</b>	<b>37 (59.7%)</b>	<b>69 (39.2%)</b>
Data processing and result analysis	<b>189 (32.5%)</b>	30 (48.4%)	<b>68 (38.6%)</b>
Methodology of scientific communication and publication	65 (11.2%)	18 (29.0%)	25 (14.2%)
Critical assessment of publications	44 (7.6%)	10 (16.1%)	24 (13.6%)
Application of results from other studies in practice	164 (28.2%)	19 (30.6%)	36 (20.5%)
Other	8 (1.4%)	0 (0.0%)	0 (0.0%)

*\* The number of answers and % exceed the total number of persons and 100%, because the respondents chose more than 1 answer.*

According to the respondents, the main competencies for research activity in health care that should be acquired in the nursing/midwifery bachelor programme in health care include the following areas:

- ✓ types of research and methods;
- ✓ data collection for research;

- ✓ data processing and analysis of results;
- ✓ analysis of literature data;
- ✓ detection of a research problem;
- ✓ defining the purpose of the study.

In order to update and optimize the curriculum in the future, the opinion of the experts who participated in the Delphi study on the recommended curriculum for the acquisition of competencies for research activity in health care should be taken into account.

The results of the survey and the opinion of experts could be used to develop specific competencies for research in health care for each degree (bachelor, master, doctor), as well as their regulation at the national level.

The experts made additional suggestions for necessary research skills:

- presentation skills;
- preparation of a literary reference;
- rules for the use and citation of literary sources;
- features of scientific writing.

***Approbation of the curriculum for the circle "Fundamentals of Research in Health Care" with students majoring in "Health Care Management". bachelor's and master's degrees***

In July 2021, a Curriculum was developed. which was adopted by the Department Council and approved by the Faculty Council of the Faculty of Public Health of the Medical University - Pleven. For the academic year 2021/2022, an invitation for participation has been sent to all students majoring in Health Care Management. An application for participation in the circle was received by 26 students from all courses. The aim of the programme was to expand students' knowledge about research activity in health care and to provoke interest and desire to conduct research in practice.

The thematic material for the circle was originally developed on presentations with presenting theory, various examples and assignments for independent classroom and extracurricular work. The training was conducted entirely in electronic environment in accordance with the order of the Rector of MU-Pleven for the organisation of classes for part-time students in COVID-19 pandemic.

The organisation of the circle was in accordance with the following specific characteristics of the students:

- Students study part-time.
- All students were practitioners and worked in the health care system in different work shifts. often on Saturday-Sunday shifts.
- The students explained that they work in conditions of great shortage of staff and sick colleagues from Covid-19. which puts a lot of strain on them and exhausts them mentally and emotionally.
- Conducting training in an electronic environment provides an opportunity for students to study without leaving their work.
- The majority of students were family members who care for children, elderly parents and the household.

These characteristics enable the circle members to successfully cope with the additionally assigned tasks with individual pace through self-management of time.

***The results of the meetings of the circles can be synthesized as follows:***

- ✓ The meetings were regularly attended by 12 to 15 students.
- ✓ Some of the participants joined in with a passive audio connection.
- ✓ Suitable form for assignments for independent work: transmission of assignments by e-mail and for submitting the opinion of the trainer with discussion and recommendations.
- ✓ Tasks for independent work activate students, even those who were afraid to take a stand during the meetings.
- ✓ Not all students managed to answer the set tasks in time, but they provided detailed answers and identified what problems they have encountered in the theoretical matter.

**Conclusions from the meetings:**

1. Students were interested in health care research.
2. The remote form of organisation of the circle favored the inclusion of more students from different localities.
3. Participants were reluctant to participate in virtual discussions because of fear of "saying something wrong".
4. Difficulties were reported in the following thematic units:
  - perception of the essence of scientific research in health care;
  - finding a research problem in their practice;
  - formulation of a research question;
  - search for scientific literature on the problem;

- analyzing and synthesizing the read information;
- obstructed search for scientific publications in databases due to lack of knowledge of a foreign language;
- elaboration of literary reference. citation;
- development of questionnaires for research.

**Opportunities to overcome the identified problems:**

1. By preparing a specialized education book for research in health care with a detailed development of the topics like how to prepare a literature reference and arrange the sources; how to make a presentation; what are the components of the research protocol; how to determine keywords, etc.
2. By developing more practical and well-focused skills.
3. By providing translated texts of parts of some key research publications in health care.
4. By providing and analyzing examples of "good practice" in research in the form of published results of scientific research of nurses and midwives in our country.

**7. A Model for development of research in the field of health care in Bulgaria**

For successful development, validation and integration in the practice of research activity in health care in Bulgaria, the joint efforts, cooperation and collaboration between all participants in the process are extremely important. Building a professional atmosphere of trust, support and responsibility are the basis of fruitful relationships and optimal results. To draw up a Model for the development of research in health care, we referred to the international experience of developed countries and the results of the overall study in this paper.

The main contribution to the development of the model was the opinion of the experts with whom the *Delphi survey was conducted*.

**Results of the Delphi survey:**

The study was conducted in two stages. In the first stage, 18 persons from all over the country were invited. They are authorities in higher medical schools, as well as at the national level, have contributed to the development of health care in Bulgaria and met the authors' pre-set selection criteria. **Fifteen experts** from the following organisations responded:

- Medical University - Varna - 4 persons



- Medical University - Pleven - 2 persons
- Medical University - Sofia - 2 persons
- Thracian University - Stara Zagora - 2 persons
- University of Ruse - Ruse - 2 persons
- Southwestern University - Blagoevgrad - 1 person
- Medical University - Plovdiv - 1 person
- Bulgarian Association of Health Professionals in Nursing - 1 person.

The questions proposed in the first questionnaire were in line with the recommendations of the European Commission and cover the following main areas:

- 1) *Creating a structure and organisation;*
- 2) *Integration of research into practice;*
- 3) *Education for research activity;*
- 4) *Financing and investment of resources;*
- 5) *National and international cooperation.*

The questionnaire started with two introductory questions on consensus on the definition of "Research activity in healthcare" and what it covers.

First, we proposed a definition of research activity in health care. to which the experts gave their suggestions for addition:

*"Research activity **in the field** of health care is any systematic creative work of **health care professionals**, which **uses a scientific approach** to the development of knowledge and skills, based on analysis of existing professional theoretical and practical training, **tests hypotheses**, approves interventions based on human response and leads to the development of innovative applications of available knowledge. The main objectives of research **are new advances in science and practice** and the **introduced innovations to lead** to improved quality of health care and patient safety by providing evidence-based care."*

In the proposed definition, the experts agreed that for Bulgaria "Research activity in the field of health care" was applied to all health care professionals, and the results of the overall study were applicable and valid for professionals with a specialty other than "nurse" and "midwife", as all follow the general principles in the methodology of biomedical research.

A total of 86.7% of the persons indicated that the research activity in health care includes:

- a) conducting research in healthcare;

- b) participation in scientific forums with a poster;
- c) participation in scientific forums with a report;
- d) publication of articles;
- e) work on a research problem.

The opinion was adopted that the "*Strategy for the development of research activity in health care in Bulgaria*" should be part of the National Strategy for the development of health care in Bulgaria and should be developed by ***a specially formed team of health care experts*** across the country. The experts must be: representatives of each higher education institution the healthcare professionals were educated; representatives of research centres in higher education; to meet exceptional scientometric criteria.

Out of the total of 17 questions related specifically to the development of research, there were 2 on which experts agreed with over 70% and 11 were approved by over 90%.

The results show that the independent experts had common ideas and vision for the future development of research, which were included in the Model for research activity development in healthcare.

After conducting the 2<sup>nd</sup> stage of the Delphi survey the experts united their vision around the following principles:

1. It is necessary to have an active research department in health care in each higher school, where nurses and midwives are trained. The department should be managed by healthcare professionals and develop its activities by initiating research projects, attracting young researchers and collaborating with health facilities on the territory of the university. Where such structures are in place, it is important to enrich and stimulate the activity and to provide up-to-date support materials.

2. Simultaneously with the development of new master's programmes in health care it is necessary to initiate normative changes to regulate the education, professional realization and opportunities for academic development of staff who have acquired a master's degree in a specialty other than "Health Care Management". The proposals of the experts for master's programmes were in line with the European experience:

- Health care in pediatrics (Child health care)
- Health care for mental health
- Health care for the elderly (with chronic diseases)

- Primary health care
- Clinical health care (cardiac. surgical)
- Emergency health care
- Obstetric health care
- Neonatological health care
- Community health care
- Palliative health care
- Long-term health care.

3. The majority agreed that providing financial support from employers of nurses and midwives involved in health research projects is a measure that stimulates research in practice.

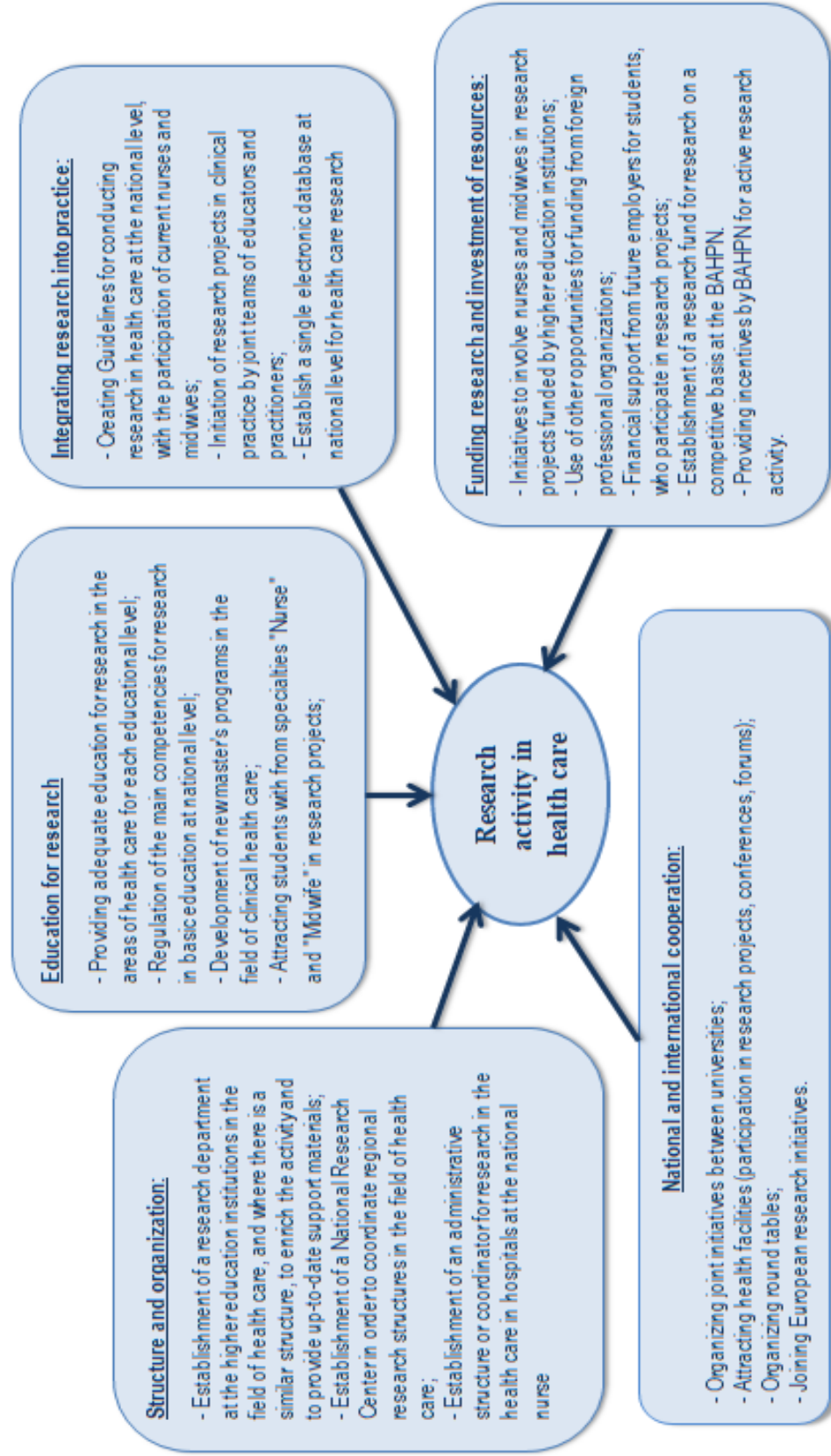
Specific measures have been proposed to change the attitude and actions of the medical institutions to support the research in health care:

- The management of each medical institution should determine its actions, regarding support for continuing education, specializations, participation in scientific forums and conducting research in health care.
- The approach of the hospitals might change after legislative changes related to the differentiation of the activities of the professionals according to their qualification.
- Development of a national strategy for health care. with a certain time frame for research and secured funding under the Ministry of Health.
- Financial incentives, support and moral incentives for health care professionals involved in research activity.
- Regular financial support from the regional board of Bulgarian Association of Health Professionals in Nursing (BAHPN) with a fee for participation in a scientific conferences or publications of an article.
- Development of project activity with included funding for training and publication in prestigious journals.

The Model for the development of research in the field of health care includes the main directions, with specific proposals for measures that are in line with international recommendations and the results of the Delphi study.

## *Model for development of research activities in health care in Bulgaria*

Research activity in the field of health care is any systematic creative work of health care professionals, which uses a scientific approach to the development of knowledge and skills, based on analysis of existing professional theoretical and practical training, tests hypotheses, approves interventions based on human response and leads to the development of innovative applications of available knowledge. The main objectives of research are new advances in science and practice, and the introduced innovations to lead to improved quality of health care and patient safety by providing evidence-based care



### III. CONCLUSIONS. RECOMMENDATIONS AND CONTRIBUTIONS

#### Conclusions

1. The development of nursing research in USA and Europe according to the publications in international databases showed active actions in several areas: education for research, creation of organisational structures, dissemination of research results and publication activity, research priorities and funding.
2. The analysis of data from NACID revealed the main topics in defended dissertations: "health care for people with diseases" (25.5%), followed by "prevention of diseases" (16.7%). The nursing and midwifery education were ranked only third among the publications in "Information for nursing staff " and "Health Care". Therefore, our first working hypothesis was not confirmed.
3. The second working hypothesis regarding the deficit of research competencies was confirmed. Preparation of nurses and midwives was assessed as insufficient or missing by 51.3% of practitioners and 61.5% of educators. At the same time, 68.5% of students and 57.5% of practitioners expressed interest and desire for research, which rejected the third working hypothesis.
4. The fourth hypothesis was confirmed. The nurses and midwives do not know enough about the principles of publishing ethics. Only 41.9% of educators, 13.2% of practitioners and 30.2% of students believed they were familiar with the principles of publishing ethics.
5. Nurses and midwives were interested in innovations in health care. Over 90% of educators introduced innovations to their students and 64.9% of practitioners made an attempt to apply them in their practice. Therefore, the fifth working hypothesis was not confirmed.
6. The approbation of the curriculum for the circle "Fundamentals of Scientific Research in Health Care" showed the presence of interest and desire among practitioners. But the results again confirmed the lack of competencies among them for research in health care.
7. Taking into account the opinion and proposals of experts participating in the conducted Delphi survey, a Model for the development of research activity in health care in our country was developed, including five areas: creation of structure and organisation; integrating research into practice; education for research; financing and investing resources; national and international cooperation.

## Recommendations

### **1. To the Expert Council for Health Care at the Ministry of Health**

1.1. To establish a working group together with Bulgarian Association of Health Professionals in Nursing to develop a "Strategy for the development of research in the field of health care in the Republic of Bulgaria" that have to become part of the "National Strategy for the development of health care in the Republic of Bulgaria".

1.2. To provide support for the implementation of the initiatives of the higher medical schools and BAHPN for the development of research activity in the field of health care.

### **2. To the Bulgarian Association of Health Professionals in Nursing**

2.1. To stimulate the development of specific competencies for research activity for the different educational degrees (bachelor. master. doctor) in collaboration with experts from all over the country and regulation at the national level.

2.2. To initiate normative changes for regulation of the research competencies in the basic training with updating of the Ordinance on the Unified State Requirements for the specialties "Nurse" and "Midwife" in accordance with the regulated obligations in the National Classification of Professions and Positions in Bulgaria and specific criteria set by the National Agency for Evaluation and Accreditation of specialties in the regulated professions and qualification characteristics for both specialties and professional activities in relation to the Ordinance № 1 of 08.02.2011.

2.3. To develop and implement a register of health care professionals in Nursing and Midwifery with obtained educational and scientific degrees of "Doctor" and "Doctor of Science"

### **3. To the higher schools training students majoring in "Nurse" and "Midwife":**

3.1. To ensure adequate standardized research education in the field of health care for each educational and qualification level of nursing and midwifery training.

3.2. To develop new master's programmes in the field of clinical health care.

3.3. To establish a department for research activity in health care, and where there is a similar structure to enrich the activity and provide up-to-date support materials.

3.4. To implement and maintain a cooperation with the research departments in other higher education institutions.

3.5. To attract students from the specialties "Nurse" and "Midwife" in research projects and providing appropriate reward incentives. including financial support.

**4. To the management of the medical institutions, the chief and senior heads of health care:**

4.1. To undertake stimulating measures to motivate nurses and midwives to participate in scientific forums and continuing education courses.

4.2. To encourage and support of workplace initiatives for conducting research in health care together with the educators from the higher schools.

4.3. To provide information about health care research in our country and supporting creative ideas for applying research results and introducing innovative methods and approaches in health care.

## Contributions

### **1. Contributions of theoretical significance:**

1.1. For the first time, a thorough analysis of international and national official documents governing the conduct of research in the field of health care has been made.

1.2. An overview of the main directions in the development of research in health care in the United States and Europe has been made.

1.3. For the first time, an extensive analysis of the dissertations of nurses and midwives and the publications in specialized journals for the period 2000-2020 was made.

1.4. The need for acquiring specific competencies for research in health care among nurses and midwives has been proven.

1.5. The main factors supporting the development of research in health care were systematized, as well as the hindering factors that have a negative effect on the scientific and research activities of nurses and midwives in our country.

### **2. Practical-applied contributions**

2.1. The importance of research activity in health care for the application of innovative approaches in the practice of nurses and midwives in order to increase the possibilities for providing evidence-based care has been proven.

2.2. For the first time, a parallel survey of the opinion of educators, practitioners and students nurses and midwives was conducted to determine the state of research activity in health care in Bulgaria and prospects for development.

2.3. A curriculum has been developed and tested for the circle "Fundamentals of Research in Health Care" for students majoring in "Nurse", "Midwife" and "Health Care Management".

2.4. A Model for the development of research activity in the field of health care was proposed, adequate to the recommendations of the European Commission with priority areas and taking concrete actions.



## SCIENTIFIC PUBLICATIONS AND REPORTS AT SCIENTIFIC FORUMS RELATED TO THE DISSERTATION

### PUBLICATIONS

1. **Milena K. Saleva**, Silviya S. Aleksandrova-Yankulovska, M. Draganova, A. Seizov. Analysis of nursing and midwifery research in Bulgaria according to NACID data. Jubelee Scientific conference with international participation “New Approaches in Public Health and Health Policy”, 26-28 Nov 2020, 229-235, ISSN 978-954-756-254-71

2. **Milena K. Saleva**, Silviya S. Aleksandrova-Yankulovska. On the crisis in the awareness of nurses and midwives in Bulgaria about the standards of publication ethics. Challenging The Law. ISSN 1314-7854. Published on 13.12.2021. <https://www.challengingthelaw.com/medicinsko-pravo/kriza-na-informiranostta/>

3. **Milena K. Saleva**, Silviya S. Aleksandrova-Yankulovska. Development of Nursing Research – Directions and Best Practices in The USA and Europe: A Narrative Review. Journal of Biomedical and Clinical Research (in print)

### REPORTS AT SCIENTIFIC FORUMS

1. **Milena K. Saleva**, Silviya S. Aleksandrova-Yankulovska. Research of specialized international and Bulgarian journals for nurses and midwives. Science days 2021. Union of Scientists in Bulgaria – Plovdiv, 25-27 November 2021.

2. **Saleva, M.** Historical aspects in the development of nursing and midwifery research. Fifth scientific conference with international participation, 26 Nov 2021. Medical University – Sofia, Subsidiary – Vratsa.

3. **Saleva, M.** Do we have a crisis in publication ethics among nurses and midwives in Bulgaria? Ninth National Annual Conference on Bioethics and Biolaw “Life and Crisis”. 2 December 2021, Sofia.

## **Research activity of nurses and midwives and prospects for development**

### **Milena Saleva**

**Background:** The importance of research in the field of health care in developed countries has been proven over time in the international aspect. This activity is constantly evolving by expanding the scientific knowledge base, helping to determine the parameters of the profession and contributing to more effective and quality health care for patients. Research among nurses and midwives in Bulgaria is a relatively new aspect in the field of health care. Responsibility to patients, society and the profession requires reaching an adequate level of research competencies in this area.

**Objective:** To analyse the development of the research activity of nurses and midwives in Bulgaria for the period 2000-2020 and to propose a model for future development in accordance with European and international trends which will create a basis for the introduction of evidence-based care and of innovative approaches in health care.

**Methods:** A complex medico-social survey study was conducted using variety of methods. A narrative review of publications about development of nursing research in developed countries and an analysis of public information on the dissertations of nurses and midwives and content analysis of their publications for the period 2000-2020 were performed. Originally developed individual self-administered questionnaires were distributed among 617 nurses and midwives in hospitals, 65 educators and 184 students. A Delphi survey was performed with 15 experts in order to establish a Model for future development of research activity in health care.

**Results:** The development of research of nurses and midwives in the USA and Europe on publications in international databases shows active actions in several areas: research education, establishment of organisational structures, dissemination of research results, research priorities and funding. The analysis of publicly available information on research activity of nurses and midwives in our country shows that the most topics concerned "health care for people with diseases", followed by "prevention and prevention of diseases". A deficit of research competencies has been identified. Preparation for research was assessed as "insufficient" or "missing" by 51.3% of practitioners and 61.5% of educators. At the same time, 68.5% of students and 57.5% of practitioners express interest and desire for research in the area of health care. Nurses and midwives in our country don't know enough about the principles of publishing ethics. The groups are interested in innovations in health care: 95.4% of educators introduce their students to them; 64.9% of practitioners have tried to apply them in their practice. Based on the results of the survey, an educational programme for student circle "Fundamentals of Research in Health Care" has been developed and tested. With the help of Delphi survey among experts, a *Model for the future development of research in health care in our country* has been developed, including five areas: creating a structure and organisation; integrating research into practice; research education; financing and investing resources; national and international cooperation.

**Key words:** nursing research, nurses, midwives, development, research education, trends, publication ethics, innovations, organisational structures, funding.