**MEDICAL UNIVERSITY – PLEVEN**
**FACULTY OF PUBLIC HEALTH**
**DEPARTMENT OF PUBLIC HEALTH SCIENCES**

# NURSING CARE MANAGEMENT IN PATIENTS SURVIVING ISCHAEMIC STROKE IN BULGARIA

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# ABSTRACT

of the dissertation thesis for awarding the educational-scientific degree Doctor of Philosophy

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The dissertation thesis contains 165 standard typewritten pages and the text is illustrated with 32 figures, 2 diagrams, 19 tables, 10 appendices and 9 sub-appendices.

The references include 251 titles, of which 166 in Cyrillic and 85 in Latin alphabet.

In connection with the dissertation thesis 4 publications and 6 scientific announcements have been made at national and international scientific forums.

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The dissertation thesis was approved and referred for public defense by an enlarged department council of the Department of Public Health at the Faculty of Public Health, Medical University - Pleven on May 14, 2021.

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- ✓ *Managers of medical facilities;*
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- ✓ *Practicing nurses;*
- ✓ *Higher school teachers;*
- ✓ *Students majoring in Nursing, 4th year of study;*
- ✓ *Ischaemic stroke patients;*
- ✓ *Participants in the expert group.*

***USED ABBREVIATIONS:***

*BAHPN – Bulgarian Association of Health Professionals in Nursing*

*EU – European Union*

*HC – Health Care*

*IS – Ischaemic Stroke*

*NIC – Nursing Intervention Classification*

*MFHC – Medical Facilities for Hospital Care*

*MHAT – Multi-profile Hospital for Active Treatment*

*MI – Stroke*

*ICNP – International Classification of Nursing Practice*

*CVC – Cerebrovascular Conditions*

*CVD – Cerebrovascular Disease*

*CVA – Cerebrovascular Accident*

*NFA – National Framework Agreement*

*EQD – Educational-Qualification Degree*

*HPN – Health Professionals in Nursing*

*PSS – Patients who have survived a Stroke*

*PSIS – Patients who have suffered an ischaemic stroke*

*NCM – Nursing Care Manager*

*RF – Risk Factors*

*PGT – Postgraduate Training*

*HCS – Health Care Specialists*

*WHO – World Health Organization*

*LEMC – Labor-Expert Medical Commissions*

*TEP – Therapeutic Education of Patients*

*HCM – Health Care Management*

*UMPHAT – University Multi-Profile Hospital for Active Treatment*

*NANDA – North American Nursing Diagnoses Association*

*NIC – Nursing Intervention Classification*

*PHIN – Philosophy and Introduction to Nursing*

*CPHRM – Clinic of Physical and Rehabilitation Medicine*

## INTRODUCTION

The cerebrovascular conditions (CVC) had been one of the leading causes of morbidity, mortality and disability. Brain strokes had a major role among the socially significant diseases nowadays. Their medical and social importance had been the result of the very high morbidity and mortality rates, as well as of the severe disability among the survivors.

According to B. Gerasimov (2012) and the morbidity analysis, every year in our country about 40,000 people got brain stroke, as over 7,000 of them die from complications and consequences of this extremely insidious disease. Bulgaria had been at one of the top places in terms of mortality from brain strokes and they were the third most common cause of death in Bulgaria. There were over 120,000 disabled people as a result of brain stroke, certified by Labor Expert Medical Commissions (LEMC) and retired due to illness, with or without an attendant. According to the national statistics of recent years, in our country the tendencies had been for an increase in the cases of brain strokes, as ischaemic strokes (IS) represented about 88% of all strokes. One of the causes of cerebrovascular accident had been the transient cerebrovascular disorders (over 90,000 people annually), and over 50% of them were more likely to have brain strokes.

Due to the social significance of the brain stroke in our country, a number of studies had been carried out on the risk factors leading to this disease. B. Gerasimov (2012) came to the conclusion that over 130,000 Bulgarians had one, two or more risk factors that lead to cerebrovascular accident (CVA). Some of them included high blood pressure, diabetes mellitus, high rates of cholesterol, stenosis of the cerebral blood vessels, etc. Other predisposing factors were excessive alcohol and cigarette use, lack of active movement, overweight, concomitant diseases, stress.

All these facts had created serious challenges for the health care management for patients who had experienced a brain stroke, incl. patients who had survived an ischaemic stroke (PSIS), with an emphasis on their degree of dependence on care.

## I. AIM AND OBJECTIVES, RESEARCH ORGANIZATION AND CONDUCTING

### 1. Aim and Objectives of the Research

**The aim of the present study was to analyse nursing care given to patients surviving ischaemic stroke in Bulgaria, to identify the problems and to propose measures to optimize nursing care management for such patients/clients.**

To achieve the main goal of the study, the following **objectives** were set:

1. To differentiate the problem areas in the provision of nursing care for PSIS in our country.

2. To study the European experience in the field of organizational and managerial aspects of nursing care for PSIS.

3. To study the specifics of nursing care for PSIS according to the nurses and nursing care managers who work in wards/clinics of MFHC (Medical facilities for hospital care).

4. To evaluate the training of students in the speciality Nursing for the implementation of health care for PSIS in our country, according to interns and teachers of the same speciality.

5. To establish the satisfaction of patients who had survived IS, hospitalized in clinics/wards of Neurology and wards/clinics of Physical and Rehabilitation Medicine of their care given to them and the need of care at home.

6. To develop drafts for:

- Standardized nursing care plan for PSIS
- An individual assessment form of the patient and individual nursing care plan for PSIS
- To work out a Nursing Care Handbook for PSIS at home.

### 2. Research Hypotheses

**The study assumed that:**

2.1. No nursing plan had been applied when care for PSIS were provided by the nurses in the medical facilities.

2.2. There had been no validated forms for determining the individual care needs of patients with ischaemic stroke and their appropriate planning.

2.3. Nurses had been theoretically well prepared to plan care for patients who had experienced an ischaemic stroke, but objective circumstances in practice prevented the implementation of effective health care management.

## 3. Object, Subject and Setting of the Study

**The object** of this study was the nursing care for patients who had experienced an ischaemic stroke in six multi-profile hospitals for active treatment (two of them – university hospitals) and three higher medical schools – all located in Northern Bulgaria.

**The subject** of this study had been the problems related to the nursing care management for patients who had experienced an ischaemic stroke.

**Setting of the Study**

The study covered the period March 2016 – December 2020. In its nature, it was a comprehensive sociological survey using a survey, documentary method and an expert assessment.

The study was carried out in several **stages**:

**Stage I** – preparation and study planning, analysis of the problem, defining of the work objectives, hypotheses, tasks and design of the study. Selection of appropriate materials and research methods. Presentation of the scientific idea before the Commission on Ethics of Research Activities at MU-Pleven for an opinion.

**Stage II** – organization and implementation of the survey of the target groups of health professionals in nursing:

2.1. Survey of nurses and nursing care managers working in neurological and rehabilitation departments/clinics in the respective medical establishments, regarding the nature of care and related documentation.

2.2. Teachers of health care in the speciality Nursing and interns in the same specialty on health care and related documentation for PSIS.

**Stage III** – organizing and surveying of patients who had survived an ischaemic stroke, hospitalized in the wards/clinics of neurology and the wards/clinics of physical and rehabilitation medicine in the medical facilities included in the study.

**Stage IV** – Processing and analysis of the survey results, working out a draft of Standardized nursing care plan for PSIS and providing an expert evaluation.

**Stage V** – Processing and analysis of the expert evaluation results and preparing a draft Form for individual evaluation and nursing care plan for PSIS and a Nursing Care Handbook for PSIS at home. Defining of conclusions, contributions and recommendations.

**The first stage** of the study was conducted in the period March 2016 – October 2019.

**The second stage of the study took place in the period March 2016 – November 2019:** for the period March 2016 – July 2018 the survey was implemented among the current nurses and nursing care managers in the included medical facilities.

Most of the covered hospital were visited on site by the doctoral student, the purpose of the study was explained to management representatives and consent was obtained to conduct the study; March 2016-June 2016 an investigation was carried out in the form of a direct group survey among four-year students in Nursing and in the period March 2016 – November 2019 an investigation was made in the form of a direct group survey among teachers in nursing from the higher schools included in the study. The objective of the study was explained to management representatives in the covered higher schools and consent was obtained for carrying out the survey.

The collection of data from the survey of PSIS in the respective hospitals took place **during the third stage – May 2016 – March 2019** and was carried out personally by the doctoral student with the assistance of the managers of the nursing care units.

**The fourth stage of the study was implemented in the period April 2019 – September 2020** and ***Draft Standardized Nursing Care Plan for patients with ischaemic stroke*** was developed and submitted for expert evaluation.

The expert evaluation covered the period September 2020 – November 2020. On the basis of the expert evaluation results and the analysis of the opinion of the persons included in the survey until December 2020, a **draft Individual Assessment Form and Nursing Care Plan for PSIS** was proposed. The analysis of the overall results from the surveys served as a basis for the development of a Nursing Care Handbook for PSIS at home; that was the **5$^{th}$ stage of the study.**

## 4. Location and Time of the Study and Monitored Units

The location of the study was:

- Six medical inpatient facilities, two of them university hospitals within the territory of Northern Bulgaria.
- Three higher schools training students in Nursing. These were the logical monitored units.

Technically the monitored units were:

1. UMPHAT “Dr. G. Stranski” – Pleven;

2. MPHAT – MMA – Pleven;

3. MPHAT "St. Pantaleimon" – Pleven;

4. MPHAT – "Avis Medica" – Pleven;

5. MPHAT – Ruse – AD;

6. UMPHAT – "St. Marina" – Varna;

7. MU – Pleven, Faculty of Health Care;

8. MU – Varna, "Prof. Dr. Paraskev Stoyanov", Faculty of Public Health;

9. University of Ruse "Angel Kanchev", Faculty of Public Health and Health Care

The study covered the period 2016-2020.

The study was carried out with the permission of the managers of the involved institutions, after receiving a Decision of the Commission on Ethics of Research Activities KENID at MU-Pleven.

**4.1. Surveyed Groups of Individuals. Main Characteristics. Groups Selection and Forming.**

The following groups took part in the study:

- Nurses working in clinics/departments in neurology and/or rehabilitation wards of the medical facilities included in the study.
- Nursing care managers of clinics/departments in neurology and/or rehabilitation wards of the medical facilities included in the study.
- Trainees in the speciality Nursing, IV year of study, trained in the higher schools included in the study.
- Teachers in Nursing in three higher schools.
- Patients who had survived ischaemic stroke, hospitalized in the clinics/departments of neurology and departments/CPHRM on the territory of Pleven
- Experts in the field of health care for patients with ischaemic stroke, participating in the evaluation of the draft ***Standardized Nursing Care Plan for Patients with Ischaemic Stroke***

**Main Characteristics of the Surveyed Individuals**

Out of a total of 800 planned individuals in the survey, 372 (46.5%) responded. The response rate varied from 100% for the nursing care managers to 22.2% for PSIS (*Table 1*).

**Table 1. Distribution of the surveyed individuals per groups**

(number, %)

| No. | Groups of surveyed individuals | Planned individuals (number) | Responded individuals number | Responded individuals % |
|---|---|---|---|---|
| 1. | Health professionals in nursing | 81 | 75 | 92.6 |
| 2. | Nursing care managers | 7 | 7 | 100.0 |
| 3. | Students – 4th year | 142 | 122 | 85.9 |
| 4. | Teachers in Nursing | 34 | 33 | 97.1 |
| 5. | Patients with ischaemic stroke | 514 | 114 | 22.2 |
| 6. | Experts | 22 | 21 | 95.5 |
| **Total** | | **800** | **372** | **46.5** |

**Criteria for inclusion in the study:**

- Patients over 18 years of age – male and female;
- Patients with a confirmed diagnosis of ischaemic stroke (Clinical pathway (CP) No. 50 diagnosis and treatment of ischaemic stroke without thrombolysis) and hospitalized in departments/clinics of neurology and departments/CPHRM included in the study;
- Patients, able to fill in the questionnaire on their own and knew they had an ischaemic stroke;
- Pre-graduation students majoring in Nursing;
- Teachers in the discipline Philosophy and Introduction to Nursing. Theoretical Fundamentals. (PHIN) and Practical Fundamentals of Nursing Care. (PFNC) to students majoring in Nursing;
- Health professionals in nursing working in departments/clinics of neurology and departments/CPHRM included in the study;
- Nursing care managers in departments/clinics of neurology and departments/CPHRM included in the study;
- Habilitated lecturers at the higher medical schools, engaged in the teaching nursing care and their management;
- Heads of departments related to the training of students majoring in Nursing in the included higher schools.

**Criteria for exclusion from the study:**

- Patients under 18 years of age;
- Patients with different diagnoses of ischaemic stroke;
- Patients diagnosed with ischaemic stroke who had not been hospitalized in the clinics/wards covered by the study;
- Patients, not able to fill in the questionnaire on their own and did not know they had an ischaemic stroke;
- First, second and third year students majoring in Nursing;
- Nursing care specialists working in wards/clinics of medical facilities, other than those included in the study;
- Nursing care managers in wards/clinics not included in the study;

One of the tasks of the study was the development of a draft standardized nursing care plan for patients who had survived an ischaemic stroke. The literature data, as well as the fact that care planning had been studied for years but not applied, were some of the main arguments for the proposed draft for a standardized care plan with scales for objective assessment of the patient's condition. In order to validate the draft, it was proposed for an expert evaluation.

*According to the dictionary of the Bulgarian language, the meaning of the word "expert" has been "a specialist appointed to give an opinion when considering a matter which falls within his/her competence".* Therefore, health professionals in nursing were invited as experts.

In the **expert** group for evaluation of the draft of the Standardized Nursing Care Plan for patients with PSIS, 22 experts occupying positions at different levels of health care management in our country were invited to participate, distributed as follows:

- Senior level of management (national level) – 2 experts (1 representative of the Expert Group on Health Care at the Ministry of Health and 1 representative of BAHPN).
- Intermediate level (coordinating management) – 12 (heads of departments in MU-7, head of clinic in a medical facility – 4, director of Medical College – 1)
- Lower level (operational management) – 8 (senior nursing care managers – 4, habilitated lecturers – 4)

The expert group included practicing supervisors and teachers in nursing care in higher medical schools, who had the necessary competencies for an expert conclusion in the field of

nursing care for patients who had survived an ischaemic stroke. For the achievement of the comprehensiveness of the study individuals from Pleven, Sofia, Varna, Shumen, Ruse, Stara Zagora, Plovdiv and Blagoevgrad were included in the expert group.

### 4.2. Research Methods

The aim of the research required the use of a set of sociological and statistical methods:

#### 4.2.1. Sociological Methods

- ***Survey method***

To achieve the objective the study, five types of survey cards and one expert evaluation questionnaire were used. Survey cards were worked out, including open, semi-open and closed specially prepared for the purpose questions for researching the opinion and attitude of the respondents on the investigated topics:

**The survey cards were prepared for:**

- for health professionals in nursing;
- for nursing care managers in the wards/clinics included in the study;
- for lecturers from the universities covered in the study;
- for students in the professional field of Health Care
- for patients who had survived an ischaemic stroke;
- for experts on the standardized nursing care plan

The survey cards were approved by the Commission for Ethics of Research at the Medical University – Pleven.

**Anonymous survey of health professionals in nursing**

A survey of the opinion of 81 individuals – full-time medical specialists from the covered medical establishments was planned, as 75 nurses responded, the realized return of the survey cards was 92.6%.

The questionnaire was developed specifically for the purposes of the survey and consisted of 50 closed and semi-open questions, 4 of them were for identification.

The questionnaire referred to an assessment of the opinion of nurses working in clinics/wards for the treatment and rehabilitation of patients with brain on the nature of care and related documentation.

**Survey card for the senior nursing care managers in the wards/clinics of neurology and physical and rehabilitation medicine**

The survey group consisted of 7 nursing care managers, as all of them responded to the survey. The questionnaire included 21 questions, of which twelve closed, five open and four – semi-open.

The questions were related to the opinion of the senior managers regarding the possibilities for application of a standardized and individual nursing care plan in the daily practice.

**Anonymous survey of teachers in nursing care**

A survey of the opinion of 34 teachers in nursing care from the higher medical schools included in the study was planned. Thirty-three questionnaires were received, which was 97.1% return.

The questionnaire was developed for the purpose of the study and included 34 questions (closed, open and semi-open), 5 of which for identification. The questions were aimed at investigating the opinion of the nursing care teachers on the nursing process and the plan of nursing care for patients who had survived a brain stroke in both inpatient and outpatient settings.

**Anonymous survey of students majoring in Nursing – 4$^{th}$ year**

A survey of the opinion of 142 students of the higher medical schools included in the study was planned. Of them 122 individuals responded and the realized return of the questionnaires was 85.9%.

The questionnaire was developed for the purposes of the survey and consisted of 57 questions (closed and semi-open). The questions were aimed at the opinion of the students in nursing, 7$^{th}$ and 8$^{th}$ semester, on the nursing care and the related documentation for the patients with a brain stroke.

**Anonymous survey among PSIS patients hospitalized in clinics/departments of Neurology and Physical and Rehabilitation Medicine**

A survey of 515 patients was planned, of which 114 responded to it, which represented 22.2%.

The questionnaire was specially worked out for patients who had survived a brain stroke and included 22 closed questions, 5 of which were for identification.

The questionnaire was focused to the opinion of patients who had survived a brain stroke and were hospitalized in the specialized clinics/wards for treatment and rehabilitation, regarding their satisfaction with the care provided to them and the need for such at home.

**Expert evaluation**

For the purpose of the expert evaluation, an "Expert Evaluation Card" was used, containing 14 evaluation criteria on a three-point scale.

The experts were given the opportunity to express their views freely on the studied issues.

- ***Documentary Method***

The documentary method was used for collecting information on the structure and organization of nursing care in hospital and outpatient settings for patients who had survived an ischaemic stroke. For the information organization, a special questionnaire was developed, for systematizing the relevant information from:

- Health Act in the Republic of Bulgaria (2020)
- Medical Establishments Act in the Republic of Bulgaria (2018)
- Law on Professional Organizations of Nurses, Midwives, Associated Specialists, Dental Technicians and Assistant Pharmacists (2018)
- Ordinance No. 2 of February 6, 2014 for approval of the medical standard "Nervous Diseases"
- Ordinance No. 1 on the professional activities that nurses, midwives, associated specialists and health assistants may perform independently or by appointment (2011)
- Ordinance No. 40 of November 24, 2004 determining the basic package of health activities guaranteed by the NHIF budget
- Ordinance No. 31 of June 28, 2001 on postgraduate training within the healthcare system (Repealed, SG No. 7/2007)
- Clinical pathway No. 50 – diagnosis and treatment of ischaemic stroke without thrombolysis with minimal hospital stay – 4 days;

- Clinical pathway No. 254 – long-term treatment and early rehabilitation after the acute stage of ischaemic and hemorrhagic stroke with residual health problems hospital stay up to 20 days per year
- National Consensus on Prevention, Diagnosis and Treatment of Cerebrovascular Diseases (2020)
- National Framework Agreement (2018) – Annex 17A; Clinical pathways
- National Framework Agreement (2019) – Annex 17; Clinical pathways
- The Strategy for Development of Health Care in the Republic of Bulgaria 2013-2020
- Operational Program "Human Resources Development". "Patronage Care +" (2021)
- Scales for assessing the condition and dependence on care in patients with an ischaemic stroke
- NANDA Nursing Diagnosis List For 2015-2017

### 4.2.2. Statistical Methods

The obtained results were processed with SPSS 25.0 and Microsoft Excel 2010. The results from the questionnaires were processed using Excel 2010 and SPSS v. 25.

The data in the questionnaires were in the form of qualitative variables that were processed by means of the following statistical methods:

- ✓ Descriptive statistical methods – for summarizing qualitatively measurable data. The results were presented in frequency tables in number and percentage.
- ✓ Non-parametric tests – the Mann-Whitney test when comparing two samples and Kruskal-Wallis when comparing more than two samples; $\chi 2$ criterion for establishing the correlation between two variables, as the correlation strength was estimated by coefficients Phi and Cramer's V. $p < 0.05$ was assumed to be statistically significant.
- ✓ Graphical analysis – MS Excel for Windows 2010 was used for graphical presentation of the results.

## II. RESULTS AND DISCUSSION

### 2.1. Results of the survey among nurses working in clinics/departments of neurology and physical and rehabilitation medicine in the cities of Pleven, Ruse and Varna

A direct anonymous survey was carried out with originally designed questionnaires, including open, semi-open and closed questions. The respondents were from the UMPHAT – Pleven, Clinic of Neurology, Department of Hospital Rehabilitation; MHAT – Pleven at the Military Medical Academy, Department of Neurology; MPHAT "St. Pantaleimon" – Pleven, Department of Neurology; MPHAT – "Avis-Medica" Pleven, Department of Neurology; MHAT – Ruse, Department of General and Vascular Neurology, Department of Physical and Rehabilitation Medicine; UMPHAT "St. Marina", Varna, First and Second Clinic of Nervous Diseases, Clinic of Physical and Rehabilitation Medicine.

Of a total of 81 individuals surveyed, 92.6% (75) responded, with 98.7% (74) being female and 1.3% (1) male. More than two thirds of the respondents 84.0% (63) had not been surveyed so far on issues related to the care of PSIS.

The health professionals in nursing (HPN) with a professional experience of 11 to 30 years predominated, which was a guarantee for the reliability of the obtained results (*Fig. 1*).

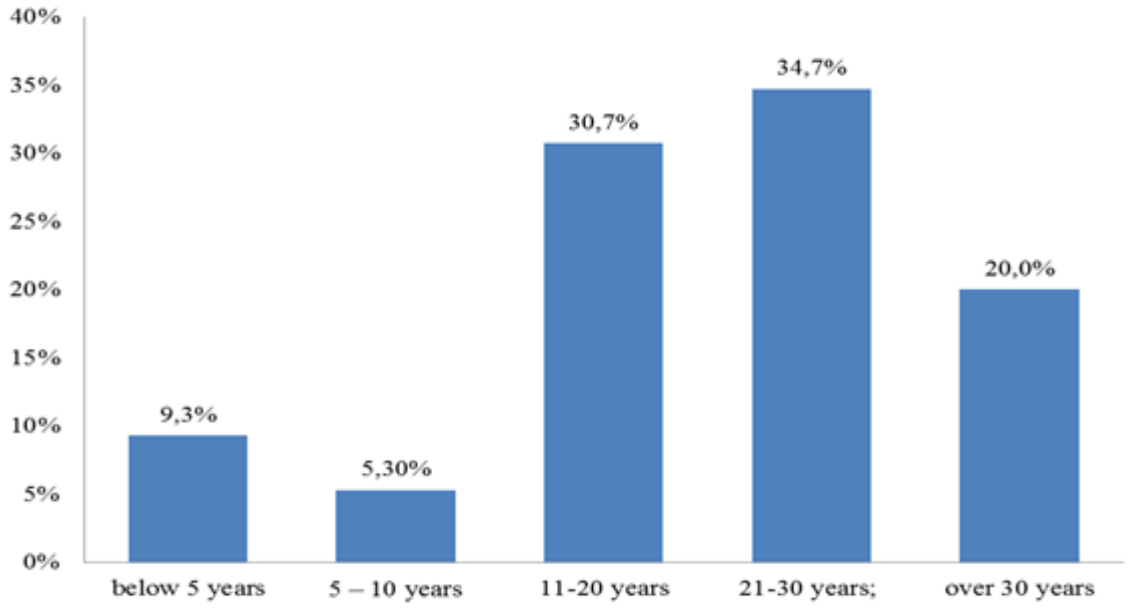


**Fig. 1. Distribution of the respondents by length of service**

Almost half of the respondents 48.0% (36) had a higher degree – specialist, (33)% (25) had a bachelor's degree, 9.3% (7) – master's degree and only 8.0 % (6) of the respondents indicated another level of education, as college and secondary specialized.

The largest relative share of 34.7% (26) was taken by nurses with length of experience of 21-30 years, followed by health professionals with experience in the speciality from 11 to 20 years 30.7% (23), as that was a prerequisite for the reliability of the data. About 20.0% (15) of the nurses had over 30 years of work experience, followed by their colleagues with less than 5 years of professional experience 9.3% (7). Only 5.3% (4) were the professionals in nursing with length of service from 5 to 10 years.

The results obtained confirmed the shortage of nurses in the departments/clinics of neurology and physical and rehabilitation medicine covered in the study, which was a disturbing fact with a view of the tendency to increase the incidence of brain strokes. Logically, in the future there would be a growing need for professional nursing care in both hospital and home settings.

The data analysis revealed that 69.3% (52) of the surveyed health professionals in nursing had been familiar with the meaning of the concept of "nursing plan", 65.4% (34) had studied care planning during their fundamental training in the speciality. The opinion of 19.2% (10) was that they understood the essence of the concept of "nursing plan" during their training for a higher qualification degree, as 17.3% (9) had learnt about the care planning from colleagues.

A statistically significant difference was found in the opinions of the respondents (students - nurses and practicing nurses) regarding the nature of the term "nursing care plan" **($\chi^2$= 41.721, df =1, p=0.000).**

It was interesting to note that a large ratio of the respondents (56%) correctly interpreted the "nursing care plan" as part of the nursing process (*Fig. 2*).

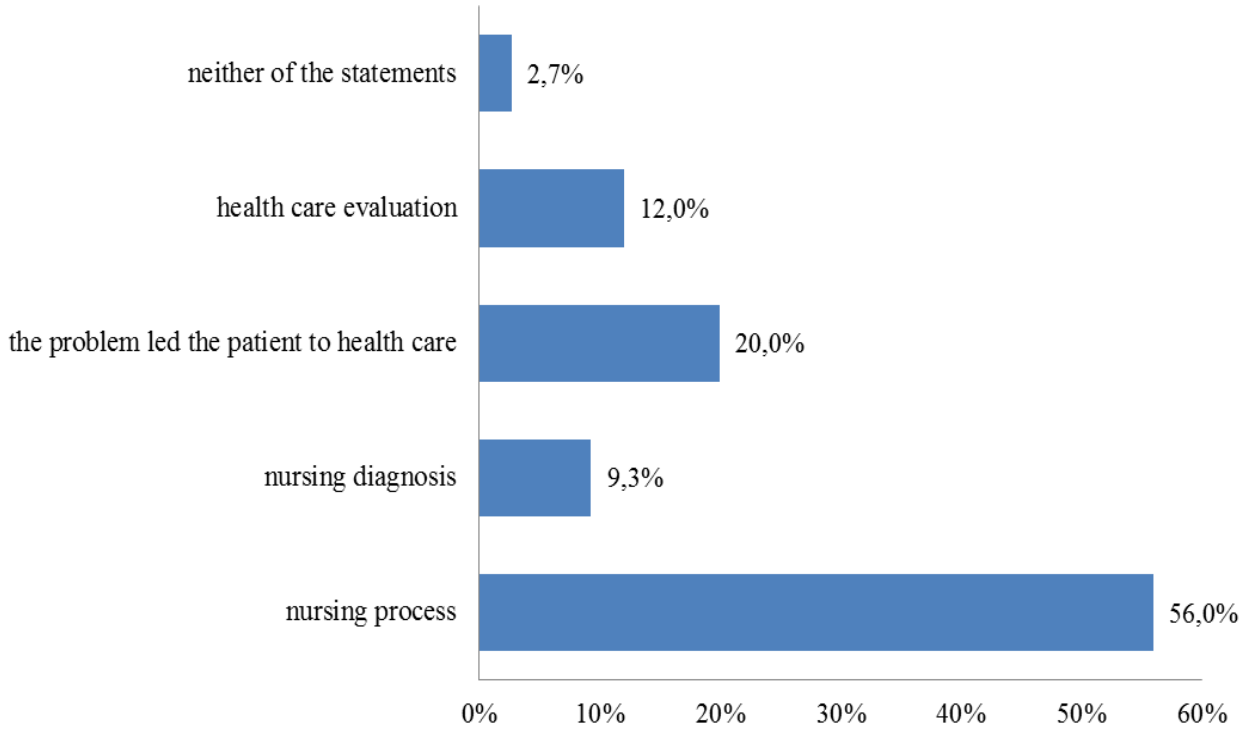


**Fig. 2. Distribution of the responses of the surveyed students regarding the essence of the "nursing care plan" %**

Fig. 2 demonstrated that the percentage of correctly answered respondents 56.0% (42) to that question was almost equivalent to those who knew the essence of the concept of "nursing care plan" – 69.3% (52), which was an evidence for the good theoretical background of the nursing practitioners. There was a statistically significant difference in the opinions of both groups of respondents (students-nurses and practicing nurses) regarding this answer *"The nursing care plan is part of"* **(U=2987.000, p=0.000)**.

The good theoretical training of nurses on this issue was also confirmed by the answers to the question: "When did the term "Nursing Care Plan" first appeared in the basic nursing education?" Fig. 3 presented simultaneously the results from the answers of two of the studied groups – practicing nurses 75 (100%) and pre-graduation students 120 (98.3%), concerning the year of introduction of the term "nursing care plan" in the educational process of the students majoring in Nursing in Bulgaria.

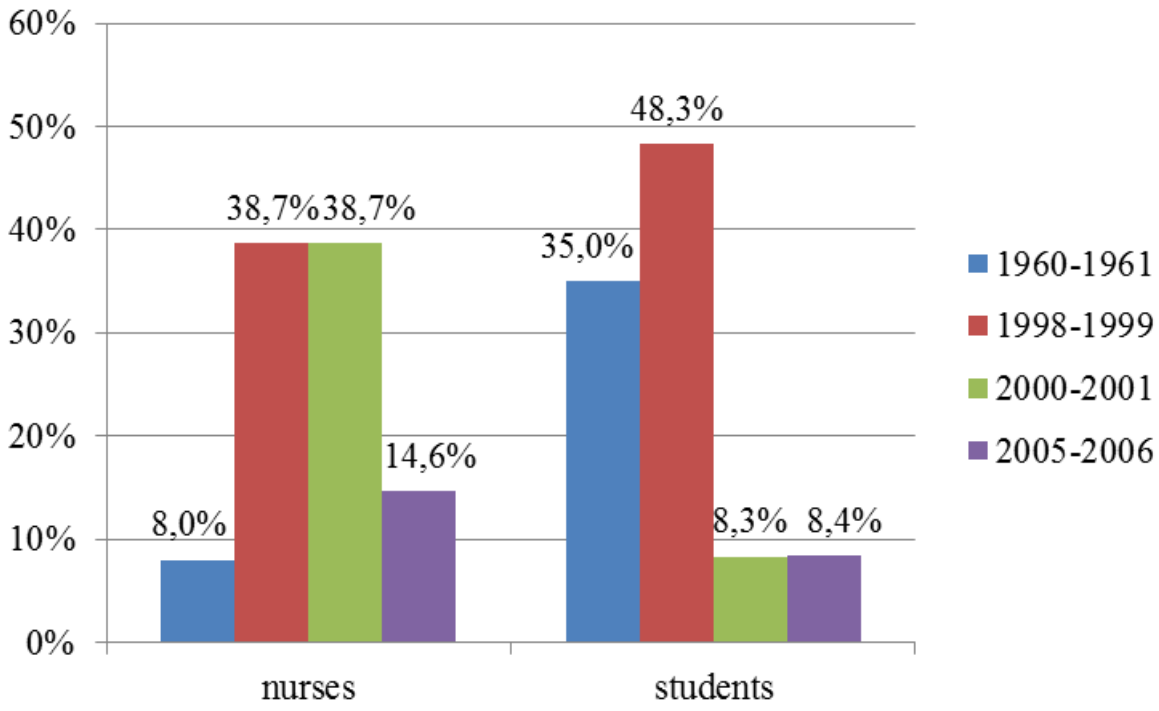


**Fig. 3. Comparative characteristics between students and practicing nurses regarding the period of appearance of the term "Nursing Care Plan" in the basic education of the students majoring in Nursing**

Fig. 3 clearly demonstrated that the surveyed pre-graduation students were more definite in their opinion about the period 1998-1999 for the introduction of planning as a terminology in our country, while the practicing nurses were more hesitant. That might be explained by the fact that a large part of the practicing nurses – 25 (35.0%) had a length of experience from 21 to 30 years, i.e. care planning as a competence of nurses had been one of the innovative approaches for nursing practice in our country.

Regardless the percentage of nurses who studied care planning 69.3% (52), a large number of the respondents 54.7% (41) did not use a "nursing care plan" in their daily practice. Finding out the reasons for that result should be the subject of forthcoming research in this field. Over half of the respondents, 63.6% (21) of those who answered "yes" to the previous question, believed that the "Nursing Care Plan" they used was generally valid for all patients admitted to the clinic/ department. The lack of unambiguous data on the nature of the "care plan" could be explained by

the existing various interpretations for this key stage of the nursing process "care planning", which had been an objective prerequisite for continuing research on this issue.

The results of both groups (practicing nurses and trainees majoring in Nursing) were in support of the nature of "care planning" (*Table 2*)

**Table. 2. Comparative characteristics of the responses of the practicing nurses and trainees on the nature of "care planning"**

| Question | Completely true | Partly true | False | Total |
|---|---|---|---|---|
| Planning is part of a creative process that benefits both the patient and the nurses. *(Mann-Whitney U= 4254.000, N=195, p=0.392 )* | | | | |
| **Nurses** | 54 (73.0%) | 18 (24.3%) | 3 (4.0%) | **75 (100.0%)** |
| **Students** | 93 (77.5%) | 23 (19.2%) | 4 (3.3%) | **120 (100.0%)** |
| At the core of planning is the patient's health problem. *(Mann-Whitney U=4419.000, N=195, p=0.780 )* | | | | |
| **Nurses** | 57 (79.2%) | 15 (20.8%) | 3 (4.0%) | **75 (100.0%)** |
| **Students** | 89 (74.8%) | 26 (21.8%) | 5 (4.2%) | **120 (100.0%)** |
| By care planning, their quality will also be better. (Mann-Whitney U=3548.000, N=195 p=0.001) | | | | |
| **Nurses** | 46 (61.3%) | 27 (36.0%) | 2 (2.7%) | **75 (100.0%)** |
| **Students** | 100 (83.3%) | 16 (13.3%) | 4 (3.3%) | **120 (100.0%)** |
| Care planning should go on at home to ensure their continuity. (Mann-Whitney U=4388.000, N=195, p= 0.722) | | | | |
| **Nurses** | 51 (68.0%) | 23 (30.7%) | 1 (1.3%) | **75 (100.0%)** |
| **Students** | 80 (66.7%) | 34 (28.3%) | 6 (5.0%) | **120 (100.0%)** |
| Care planning emphasizes the autonomous function of the nurse. (Mann-Whitney U=4494.000, N=195, p=0.985 ) | | | | |
| **Nurses** | 47 (62.7%) | 25 (33.3%) | 3 (4.0%) | **75 (100.0%)** |
| **Students** | 77 (66.4%) | 34 (29.3%) | 9 (7.5%) | **120 (100.0%)** |
| The basis of planning is the individual approach to the patient. (Mann-Whitney U=4016.000, N=195, p=0.082 ) | | | | |
| **Nurses** | 53 (71.6%) | 21 (28.4%) | 1 (1.3%) | **75 (100.0%)** |
| **Students** | 98 (81.7%) | 20 (16.7%) | 2 (1.7%) | **120 (100.0%)** |

Table 2 showed that to the six questions about the nature of care planning as a nurse's competence the dominant answer was "completely true" in both groups of respondents. These results were an objective evidence of the positive attitude of the current and future health professionals towards the patient care planning. A statistically significant difference was observed in their opinions regarding the relationship between care planning and their quality **(Mann-Whitney U=3548.000, p=0.001).**

That result might be explained by the fact that nurses who had not worked with nursing documentation could not assess the benefits of it.

For 80.0% (60) of the nurses, the "standard nursing care plan" could regulate the basic nursing care precisely and clearly for patients with a brain stroke and 76.0% (57) approved of the use of a standard nursing care plan to specify care for patients with a specific diagnosis. According to 56.1% (32) of the respondents, the standard plan would facilitate the care of staff for the patient, and for 36.8% (21) the standard plan would contribute to precision and accuracy in the scope of care.

Nurses did **not think to be sufficiently trained** to develop an individual care plan for patients who had survived an ischaemic stroke, according to 68.0% (51) of the respondents, the remaining 32.0% (24) believed that they were prepared. Contrary to this answer was the conviction of the surveyed health professionals in nursing that they were adequately competent in caring about PSIS – 61.9% (46). Those respondents who did not feel sufficiently trained said that they lacked specialized training 65.5% (19), 41.3% (12) asserted they needed periodic updating of their knowledge and 10.3% (3) they lacked exchange of experience with colleagues from other medical institutions.

One of the conclusions that followed from these results was that practicing nurses had many years of experience in caring for these patients and felt prepared, they had professional experience, however the development of a care plan was an innovation for Bulgarian nursing, there was no official regulation for this and the health professionals feel insecure.

### 2.2. Results of the survey among health care managers working in clinics / departments of neurology and physical and rehabilitation medicine in the cities of Pleven, Ruse and Varna

The efficient management of the nursing care for the patients had been the responsibility of the managers of the relevant departments and clinics. That justified our decision to include them

in the survey. All 7 (100%) of the nursing care managers planned for survey responded. The respondents were the nursing care managers of the Departments/Clinics in Neurology and Physical and Rehabilitation Medicine in six hospitals located in three cities: UMPHAT "Dr. G. Stranski"– Pleven; MHAT at the Military Medical Academy – Pleven; MPHAT "St. Pantaleimon" – Pleven; MPHAT – "Avis-Medica" – Pleven; MHAT – Ruse – AD; UMPHAT "St. Marina" – Varna.

Of the covered nursing care managers, almost all (6) stated that they had not been surveyed so far on issues related to the care of patients who had survived an ischaemic stroke.

The senior nurses were given the opportunity to share their views on care planning and the possibility of implementing these plans by verifying statements (Fig. 4).

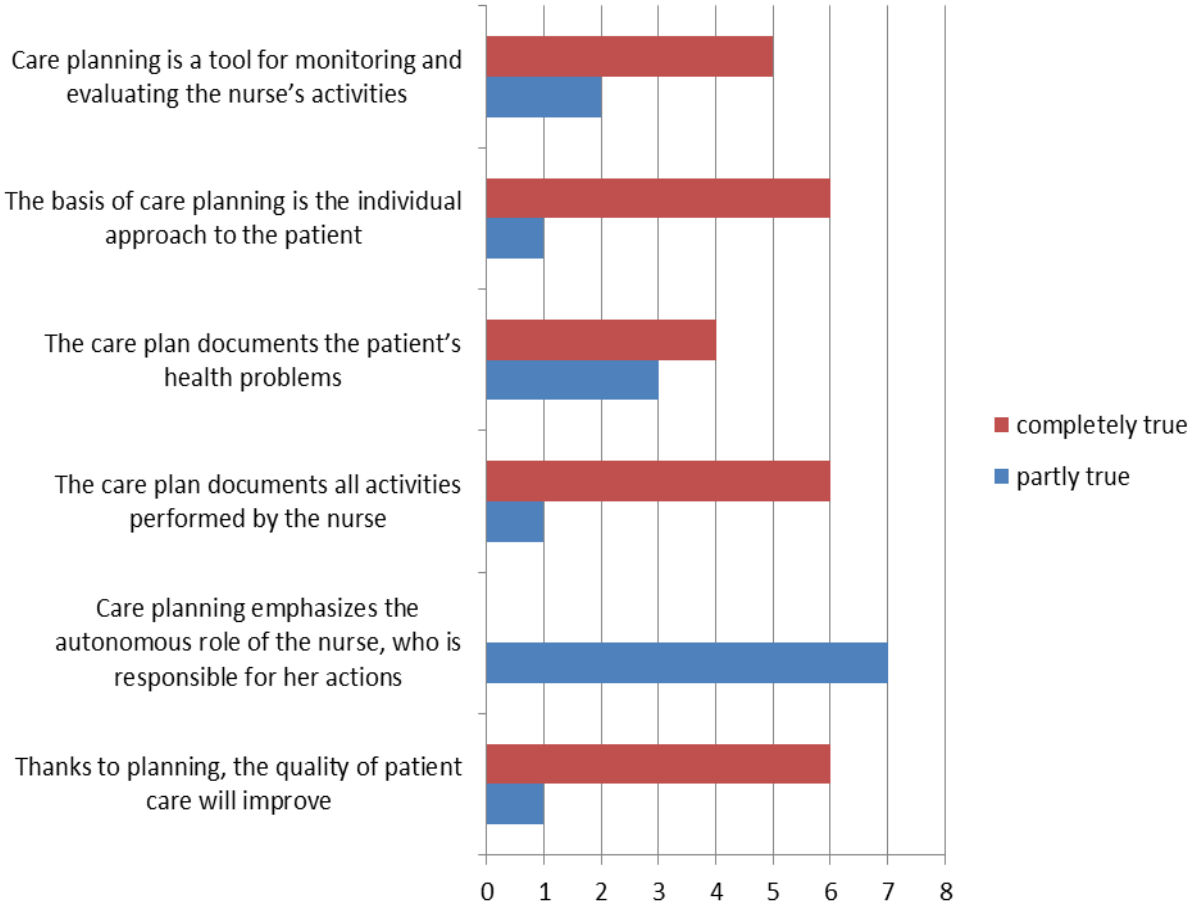


**Fig. 4. Assessment of the nursing care managers regarding the importance of the care plan (number)**

All but one of the allegations were confirmed as "completely true", proving the positive assessment of the managers for the implementation of the patient nursing care plan in the department/clinic.

There was unanimity from all respondents about the correlation between the autonomous role of the nurse and care planning, i.e. that correlation had not yet been realized; thus it necessitated optimization of the publishing activity in this aspect.

It was also impressive that none of the respondents used the degree of "false", concerning planning as a process, which confirmed the positive attitude of the nursing care managers on the researched problem.

All respondents were definite in their answer about the existing difference between an "individual" and a "standard care plan". The firmness of the respondents' answers proved that the current nursing care managers in the covered clinics/departments had been aware of the trends and innovative practices in the nursing profession.

### 2.3. Results of the survey among students in the speciality Nursing – 7th-8th semester

An anonymous survey was undertaken among pre-graduate students, majoring in Nursing from three universities - Medical University (MU) - Pleven, MU-Varna and the University of Ruse, graduates of 2015/2016. Out of a total of 142 participants in the study, 122 (85.9%) responded (*Table 3*).

**Table 3. Planned and responded pre-graduate students, majoring in Nursing per universities**

(number, %)

| University | Planned students (number) | Responded students | |
|---|---|---|---|
| | | number | % |
| MU – Varna | 47 | 43 | 91.5 |
| University of Ruse | 42 | 29 | 69.1 |
| MU – Pleven | 53 | 50 | 94.3 |
| **Total** | **142** | **122** | **85.9** |

The group of students who participated in the study consisted of 122 (100%) individuals, as we had analyzed the opinion of 120 (98.4%) pre-graduate students who knew what a nursing plan was.

From the analysis of the data, 98.4% (120) of the respondents were aware of the concept of "nursing plan", which was explained by the fact that the "nursing process" and "nursing plan" were part of the new concepts included in the curriculum after the changes in the unified state requirements (USR) for the speciality Nursing" (1998). Over two thirds of the students 86.7% (104) answered that the care plan was part of the "nursing process", which confirmed the good theoretical training needed to improve the quality and implementation of the contemporary nursing care (*Fig. 5*).

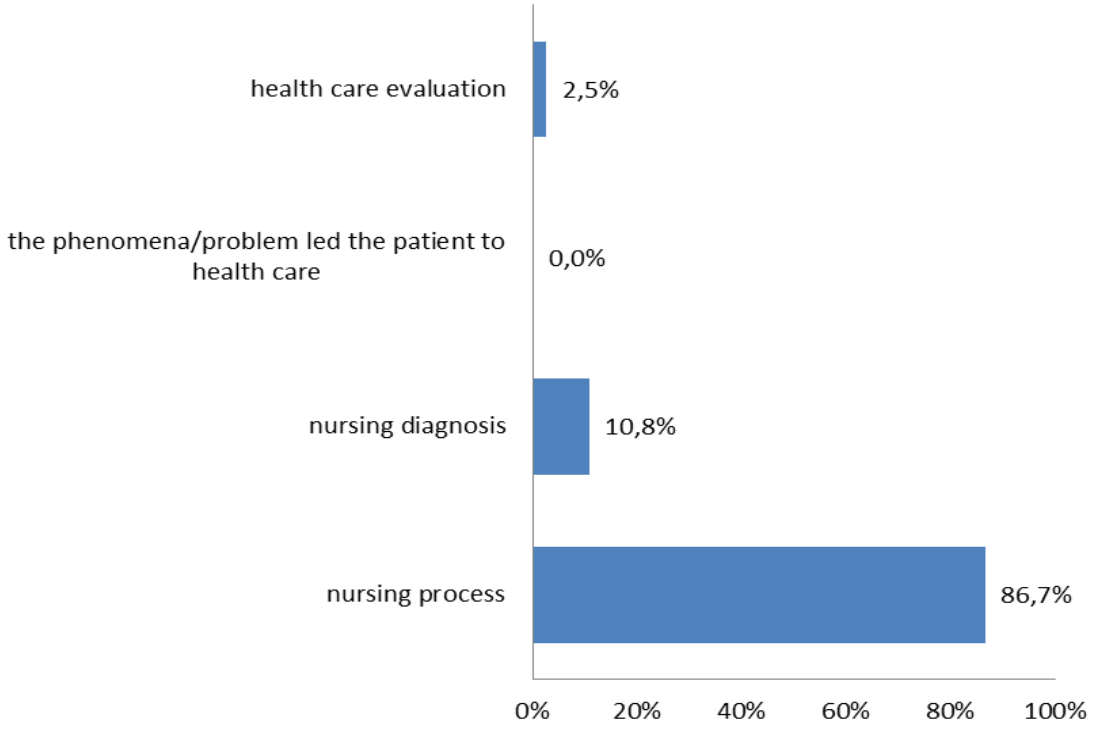


**Fig. 5. Understanding the nursing plan concept according to the surveyed students**

The surveyed trainee nurses were given the opportunity to express their views on the importance of the patient care plan through three possible answers: "completely true", "partly true" and "false" to the statements we made (*Table 4* ).

**Table 4. Significance of the patient nursing care plan according to the surveyed trainee nurses**

(number, %)

| N | Statements | Completely true | Partly true | False | Total |
|---|---|---|---|---|---|
| | | Number/% | Number/% | Number/% | Number/% |
| 1. | Care planning emphasizes the autonomous function of the nurse | 77 (**64.2)** | 38 (31.7) | 5 (**4.2)** | 120 (100%) |
| 2. | The basis of planning is the individual approach to the patient. | 98 (**81.7)** | 20 (16.7) | 2 (**1.7)** | 120 (100%) |
| 3. | Planning is part of a creative process that benefits both the patient and the nurses. | 93 (**77.5)** | 23(19.2) | 4 (**3.3)** | 120 (100%) |
| 4. | The key of planning is the patient's health problem | 89 (74.2) | 27(22.5) | 4 (**3.3)** | 120 (100%) |
| 5. | By care planning their quality would also be better | **100 (83.3)** | 16 (13.3) | 4 (3.3) | 120 (100%) |
| 6. | Care planning allows for a personal assessment of the nurse's work. | 91 (**75.8)** | 27 (22.5) | 2 (**1.7)** | 120 (100%) |
| 7. | Care planning should go on at home to ensure their continuity. | 80 (**66.7)** | 34 (28.3) | 6 (**5.0)** | 120 (100%) |
| 8. | Careful distribution of the set tasks is achieved through care planning. | 80 (**66.7)** | 35 (29.2) | 5 (4.2) | 120 (100%) |
| 9. | Care planning can serve for fair nursing pay. | 56 (**46.7)** | 33 (27.5) | 31 (25.8) | 120 (100%) |

Table 4 showed that the majority of the respondents had indicated the answer **"completely true"** for all proposed statements. That inevitably revealed the positive attitude and the perceived significance of care planning as a competence of nurses.

The highest percentage of students **83.3% (100)** fully agreed that "Care planning would make better their quality" and only 3.3% (4) disagreed.

One of the proposed statements was "The basis of planning is the individual approach to the patient", which was confirmed by a **completely true** answer from 81.7% (98) of the respondents.

The answers to this statement proved the realized significance of the individual approach, preceded by the standardization of care for patients with a certain diagnosis. The individual care plan had been developed with the active participation of the patient and his/her relatives. The patient was involved, according to his/her physical and mental capabilities in the planning and implementation of care with the assistance of a nurse.

Full communication with the patient contributed to his/her involvement as an active participant in the treatment process, the implementation of patient-centered care and effective professional behavior by nurses.

Thirdly, the respondents indicated that planning was part of a creative process that benefited both the patient and the nurses - 77.5% (93) defined it as **"completely true"**.

What had been said so far was also confirmed by the statement of the respondents for personal evaluation of the nurse activities after care planning. That statement was supported as **"completely true"** by 75.8% (91) of those surveyed and only 1.7% (2) described it as "false".

Another important aspect of the nursing process was the possibility of continuous care, i.e. achieving of an objective relation between the care in the medical institution and subsequent care at home. Two thirds of the participants 66.7% (80) supported with **"completely true"** the statement that care planning should be continued at home, 5.0% (6) disagreed (*Fig. 6*). That result made us believe that future nurses were aware of the need for continuous care to ensure precision and integrity during the recovery process.

Most of the fourth-year students (66.7%) (80) supported as **"completely true"** the statement that care planning would achieve a rational distribution of the tasks (*Fig. 6*).

The lowest was the percentage 56 (46.7%) respondents who believed that care planning was related to fair payment, 31 (25.8%) answered "false" (*Fig. 6*).

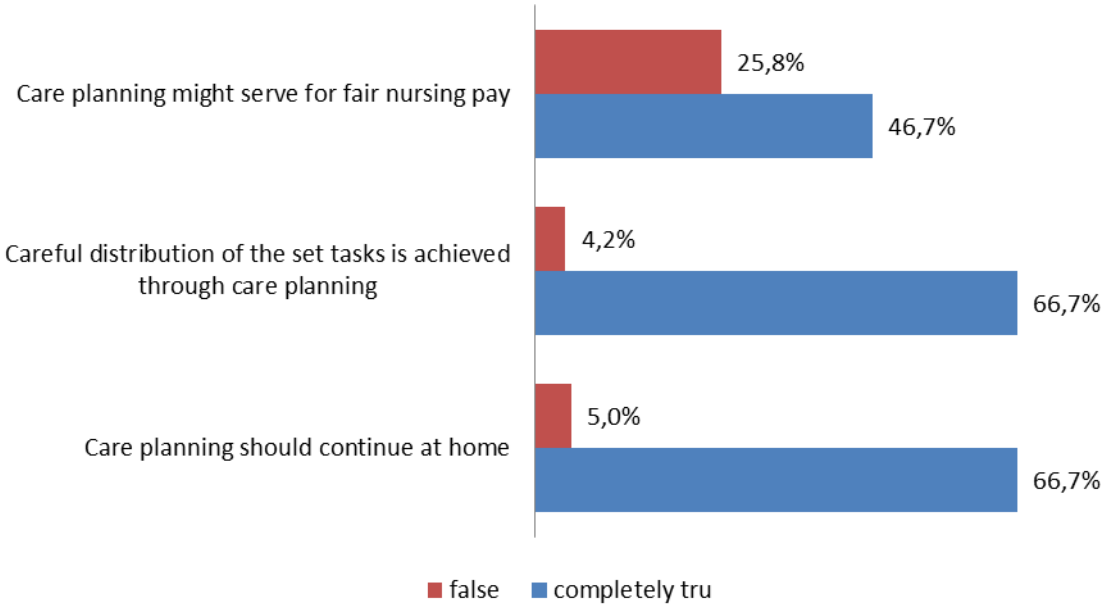


**Fig. 6. The importance of the care plan for the practice of nurses (%)**
*(Note Fig. 6 does not show the results "partly true")*

Regardless of the diagnosis and the status at discharge, every patient needed care even after leaving the hospital. That had been especially true for patients who had the following additional factors: the presence of chronic diseases, degree of disability, social disadvantage, the elderly and lonely individuals, etc.

From the presented results it might be concluded that future health professionals approved of the introduction of standard and individual nursing care plans that were necessary and applicable both in clinical and home settings. They were convinced that planning would ensure continuity, objectification, evaluation and control of the care provided.

According to 24.1% (29) of the trainees, care planning was used in the clinics/departments for the treatment of neurologically affected patients, where they had had an internship and pre-graduation practice. In the opinion of 14.2% (17) of the fourth-year students, a "'care plan" had not been used while 61.7% (74) had not seen a "care plan" in practice.

According to the pre-graduate students who answered "yes" to the previous question, the care plan used in practice was: "Generally valid for all patients admitted to the clinic/department" 58.6% (17); General/standard for patients with a definite diagnosis 9 (31.0%); Individual for each patient 7 (24.1%). The issue of documenting the implemented care plans remained unclear,

as currently there was no single official document in which to plan and register the nursing activities performed.

The majority of the students included in the survey 81.6% (98) approved of the existence of a standard care plan to regulate the care of patients with a specific diagnosis (*Fig. 7*).

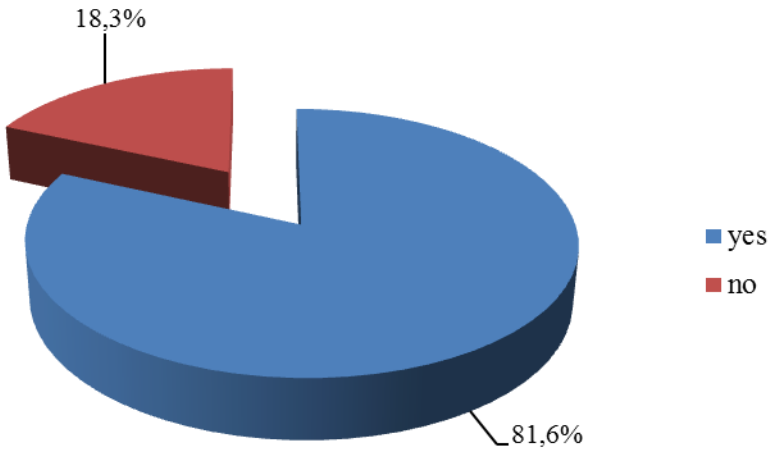


**Fig. 7. Trainees' views on the need to plan care by means of a "standard care plan"**

Most of the surveyed group 72.5% (87) had provided nursing care for a stroke patient, the remaining 27.5% (33) had not. That result was confirmed by the percentage of trainees 76.7% (92) who attended the admission of a patient with an ischaemic stroke during training clinical practice or pre-graduation clinical internship.

A considerable part of the trainees – 78 (65.0%) indicated that during the training clinical practice and/or clinical internship they took part in the admission of a patient with an ischaemic stroke and shared experience from the care for stroke patients ($\chi 2 = 33.404$, df = 1, p = 0.000), which was a statistically significant result.

Regardless of the results for the experience of the trainees in the care for PSIS, the majority of respondents 63.3% (76) said that they would not start working in a neurology department/clinic. That could be explained on the one hand by the severe condition of the patients, requiring highly specialized intensive general and special nursing care, and on the other hand by the need to continuously improve the competencies in the field of care for these patients.

It was well-known that in Bulgaria there had still no regulated clinical speciality for nurses, specifically related to the care of neurologically ill patients, and that the opportunities for postgraduate qualification in this field of nursing care were limited.

Students (n=120) were asked to make a self-assessment of their training regarding competencies for the care for PSIS. The results were given in table 5.

**Table. 5. Self-assessment of the training of the pre-graduate nurses on the listed activities related to the care for PSIS (number/%)**

(%, number)

| Activities | Not satisfactory | Satisfactory | Good | Very good | Excellent |
|---|---|---|---|---|---|
| **Activities related to patient nursing care in hospital settings** | | | | | |
| *General care* | 3.3% (4) | 12.5% (15) | 34.2% (41) | 28.3% (34) | 21.7% (26) |
| *Special care* | 1.7% (2) | 12.5% (15) | 40.0% (48) | 25.0% (30) | 20.8% (25) |
| **Activities related to patient nursing care in home settings** | | | | | |
| *General care* | 7.5% (9) | 16.7% (20) | 27.5% (33) | 35.8% (43) | 12.5% (15) |
| *Special care* | 5.8% (7) | 20.0% (24) | 35.0% (42) | 26.7% (32) | 12.5% (15) |
| **Activities related to drawing up an individual nursing care plan** | 4.2% (5) | 14.2% (17) | 32.5% (39) | 25.0% (30) | 24.2% (29) |

The trainees considered they had acquired **good knowledge** and skills in the activities related to **the general care for PSIS in hospital conditions** 34.2% (41). They felt best prepared in the activities related to the **special care for patients in hospital conditions** (40.0%) and in activities related to the **special care at home** (35.0%). The preparation for drawing up an individual care plan was also defined by the trainees as good – 32.5%. The prevailing assessment given by the trainees regarding their preparation for activities related to the care for PSIS was **good**, but evidently it did not fully satisfy them, provided that 77.5% (93) of them supported the additional

specialized training for the care of these patients, the remaining 22.5% (27) thought it was not required.

### 2.4. Results of the survey among the teachers in health care for students in the speciality Nursing

Teachers had been the individuals who gave basic knowledge, skills and habits to students majoring in Nursing. They participated in their theoretical training, which was assimilated during the practicals, clinical practice and pre-graduate internship. Well-prepared students provided quality nursing care.

An anonymous survey was conducted among 33 teachers of nursing care for students majoring in Nursing in three higher schools in Bulgaria - MU-Pleven, MU-Varna and the University of Ruse. The study covered the period March - June 2016 (*Table 6*).

**Table. 6. Percentage of teachers who responded to the survey in relation to their total number per universities (number,%)**

(number, %)

| University | Planned teachers (number) | Responded | |
|---|---|---|---|
| | | number | % |
| MU – Pleven | 15 | 15 | 100.0 |
| MU – Varna | 10 | 9 | 90.0 |
| University of Ruse | 9 | 9 | 100.0 |
| **Total** | **34** | **33** | **97.1** |

The aim of the survey among the teachers was to analyze the problems in the organization and implementation of the specialized care for the patients with an ischaemic stroke.

All surveyed teachers answered that they taught topics related to the nature of the nursing process and patient care planning. To the question: “How would you assess the interest of students in care planning”, 18 (54.5%) of the teachers thought that students showed little interest (*Fig. 8*).

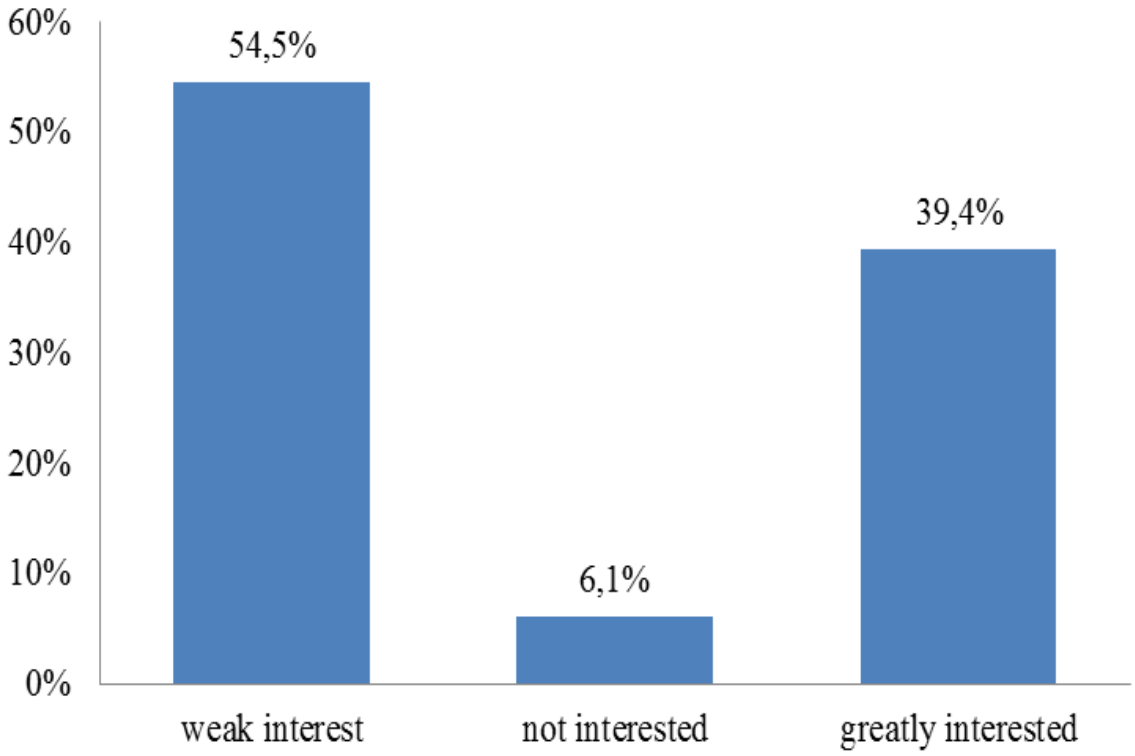


**Fig. 8. Assessment of the students' interest by health care teachers regarding care planning as part of the nursing process (%)**

The respondents (n=33) were given the opportunity to determine the degrees of accuracy of 11 statements related to establishing the importance of care planning according to them (*Tabl. 7*).

**Table. 7. Determining the importance of care planning for PSIS according to the teachers (number/%)**

(number, %)

| No | Statements | Completely true | Partly true | False |
|---|---|---|---|---|
| 1. | Through care planning, optimal accuracy and continuity of work is achieved. | **93.9% (31)** | 6.1% (2) | 0.0% |
| 2. | The nursing care plan increases the paperwork in the daily routine of the health professionals in nursing | 3.0% (1) | **66.7% (22)** | 30.3% (10) |
| 3. | The standard care plan is valid for all patients with a given diagnosis | 36.4% (12) | **45.5% (15)** | 18.2% (6) |
| 4. | An individual care plan is needed to plan care at | 75.8% (25) | 18.2% (6) | 6.1% (2) |

| No | Statements | Completely true | Partly true | False |
|---|---|---|---|---|
| | home after discharge | | | |
| 5. | The standard nursing care plan is not necessary | 6.1% (2) | 33.3% (11) | **60.6%(20)** |
| 6. | An individual nursing care plan is not necessary | 3.0% (1) | 3.0% (1) | **93.9%(31)** |
| 7. | The individual care plan is prepared for each patient on the basis of the standard one | 84.8% (28) | 12.1% (4 ) | 3.0% (1) |
| 8. | Care planning allows an individual approach to patients with the specific disease. | 97.0% (32) | 3.0% (1) | 0.0% |
| 9. | Care documentation is a tool for monitoring and evaluating the activities of the nurse. | **100% (33)** | 0.0% | 0.0% |
| 10. | Due to the documentation, the achieved goals set in the care planning are analyzed. | **93.9% (31)** | 6.1% (2) | 0.0% |
| 11. | The documentation of the care has a legal value for the performed activity. | 81.8% (27) | 12.1% (4) | 6.1% (2) |

The share of the surveyed individuals was equal 93.9% (31), who absolutely agreed with the statement that the care planning achieved optimal accuracy and continuity in the work, and that due to the documentation it was possible to analyze the achieved goals set in the care planning.

All surveyed teachers 100% (33) accepted the documentation of care as a means of monitoring and evaluating the activities of the nurse. Table 6 revealed that most of the teachers supported the use of a standard and individual care plan.

Many of the respondents were convinced that the "**Individual care plan was necessary for planning care at home after discharge from hospital**" – 75.8% (25) answered "completely true", 18.2% (6) - "partly true" and only 6.1% (2) – false.

The statements "The nursing care plan increases the paperwork in the daily routine of the health professionals in nursing" and "The standard care plan is valid for all patients with a given diagnosis" were defined by the teachers as "partly true".

Almost all surveyed teachers, 87.8% (29) used in the learning process a "standardized plan" for nursing care. According to 27.3% (9) of the respondents, the main purpose of the care plan was individualization of care, 24.2% (8) believed that it ensured continuity of care. The

remaining opinions were distributed as follows: “Providing an algorithm of actions in patient care” 21.2% (7); “Prompt and adequate patient care” 12.1% (4). Only one of the teachers noted that the care plan was needed to introduce a regulation in the nursing profession.

To the question “Do you approve of the use of a standard care plan that includes the care of patients with a specific diagnosis” in nursing practice?”, 78.8% (26) of the teachers answered in the affirmative (*Fig. 9*).

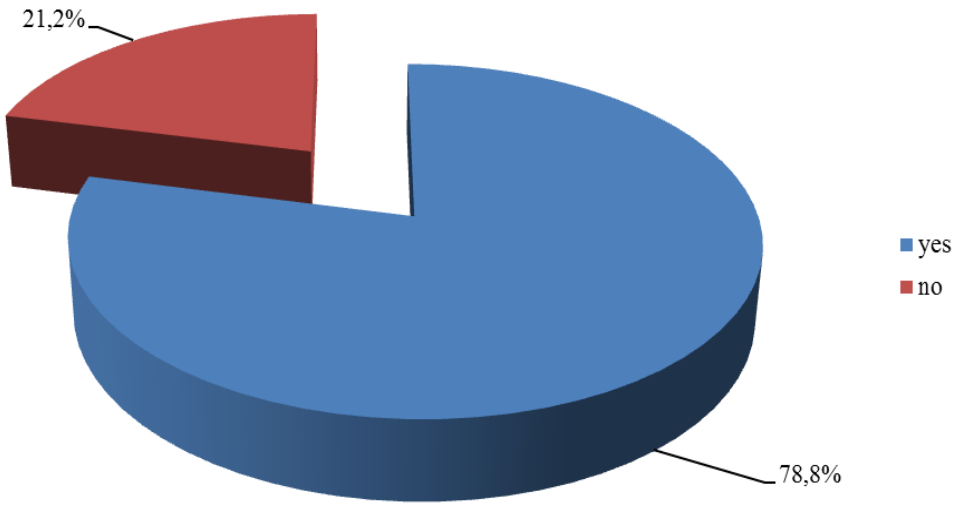


**Fig. 9. Use in nursing practice of a standard care plan that includes the care of patients with a specific diagnosis (%)**

For 84.6% (22) of the teachers, the nursing care plan for PSIS should be “Individual, developed on the basis of the standard one”, 26.9% (7) were of the opinion that the nursing care plan should be “General for all patients admitted to specialized clinics/departments” and only 15.4% (4) considered that the care plan should be “General for all patients diagnosed with a brain stroke”.

The share of the respondents who indicated that standard and individual care plans were used in the educational process for the speciality Nursing was almost equal: 30.3% (10) of the respondents included in the teaching a ***standard care plan*** for all patients with a specific diagnosis, while 33.3% (11) of them taught topics related to the development of an ***individual***

***nursing care plan*** for a patient with a specific diagnosis. For 30.3% (10) of the respondents, in the educational process for the specialty Nursing general formulations in care planning were studied, i.e. the plans were not specifically defined and 6.1% (2) did not specify any of the plans.

According to 72.7% (24) of the teachers the standard care plan would undoubtedly and properly guide us to the priorities in patient care while 24.2% (8) believed that plan **would not demonstrate all priorities** in patient care, as patients had not only fundamental needs but also individual needs that would have to dominate in patient care.

Respondents were asked about the opportunity of introducing a standardized nursing document that would reflect the planning of patient care in the ward. Most of them 48.5% (16) were of the opinion that at present it might be possible to introduce a nursing document, 39.4% (13) were negative and 12.1% (4) could not judge. The percentage of the teachers was high 97.0% (32), who considered it necessary to use a care plan for PSIS at home. According to 54.5% (18) of the teachers, the continuity of the care in the medical facility and the subsequent care in the patient's home would facilitate his/her faster recovery. The rest of the respondents, 21.2% (7) supported the statement that continuity of care would improve the quality of life of these patients and increase its duration. The percentage of the respondents was similar, 12.1% (4), who supported the statements that the continuity of the care in the hospital and the subsequent care in the patient's home would ensure effective treatment of the patient and guarantee him/her safety as well as peace for his/her relatives.

## 2.5. Results of the survey among patients with an ischaemic stroke, hospitalized in clinics / departments of neurology and physical and rehabilitation medicine in the territory of Pleven

On the basis of the retrospective data on patients being treated in the clinical bases included in the study, it was planned 514 survivors of an ischaemic stroke to be interviewed. With a view of the objective circumstances in the last two years, 114 patients were covered (22.2% response), who at the time of the study were hospitalized for treatment and rehabilitation in clinics/departments of neurology and physical and rehabilitation medicine at UMPHAT –

Pleven, MPHAT – Avis Medica – Pleven, MPHAT – St. Pantaleimon – Pleven, MPHAT – MMA – Pleven.

The distribution of the covered patients from the four medical establishments in Pleven by sex, age, education and place of residence was presented in table 8.

**Table 8. Main characteristics of patients with an ischaemic stroke (number/%)**

| Variables | Number | % |
|---|---|---|
| **Gender** | **114** | **100.0** |
| Male | 56 | 49.1 |
| Female | 58 | 50.9 |
| **Age** | **114** | **100.0** |
| Below 35 years | 1 | 0.9 |
| From 35 to 55 years | 14 | 12.3 |
| Over 55 years | 99 | 86.8 |
| **Education** | **114** | **100.0** |
| Elementary | 3 | 2.6 |
| Primary | 19 | 16.7 |
| Secondary | 66 | 57.9 |
| Higher | 25 | 21.9 |
| No education | 1 | 0.9 |
| **Permanent residence** | **114** | **100.0** |
| Rural | 54 | 47.4 |
| Urban | 60 | 52.6 |

**Gender** – the percentage of female among the patients with an ischaemic stroke included in the survey was higher 50.9% (58).

**Age** – the highest percentage of participants in the study belonged to the age group **over 55** years – 86.8% (99), followed by the age group from 35 to 55 years – 12.3% (14). It was noteworthy that the distribution of the surveyed patients with an ischaemic stroke per age groups corresponded to the global and European trends, although the trend of "rejuvenation" of the age of the ischaemic stroke in our study there was only one patient under the age of 35 years.

**Education** – PSIS with secondary education prevailed in the study 57.9% (66), followed by university graduates 21.9% (25). Only a small part of the respondents had an elementary education 2.6% (3) and 0.9% had no education.

The education, age and gender of the individuals were important factors that health professionals should consider when applying an individual approach to the patient.

**Place of residence -** 52.6% (60) of the respondents lived in a city, the remaining 47.4% (54) in a village. The place of residence affected both the way of life and the management (organization, coordination, follow-up) of the subsequent care for the patient after the discharge. The problem in the remote settlements had been that rehabilitation was difficult and there was a risk of a shortage of professional care. In patients with motor deficits, one of the problems was related to the transportation to a specialized rehabilitation ward and follow-up examinations, as well as the difficulty of visiting a specialist in the patient's home.

The percentage of patients who had a cerebrovascular accident for the first time was higher 73.7% (84), and 89.5% (102) stated that they were admitted to a medical institution immediately after diagnosed with an ischaemic stroke. The remaining 10.5% (12), who were not hospitalized immediately, answered that they were taken care of by: relatives 33.3% (4) who kept in touch with the GP; GPs 25% (3) and 41.6% (5) said they took care of themselves because their stroke was mild.

One of the main problems in the general care of first-line patients was the hygienic care, which were extremely important for the recovery of the IS patient. A large part of the patients – 43% (49) stated that nurses took care of their personal hygiene during their stay in the medical facility. Secondly, they pointed the hospital attendants as assistants in maintaining personal hygiene – 36% (41), followed by a close relative 18.4% (21) and a caregiver for a fee 2.6% (3).

Not a small part of the patients – 44.7% (51) said that they needed a person to be with them around the clock and help them in their daily routine activities, 25.4% (29) said they needed help sometimes, the remaining 29.8% (34) considered that they did not need assistance.

Patients were asked to make a comprehensive assessment of the care provided to them by the nurses in the ward where they were admitted for treatment (Fig.10).

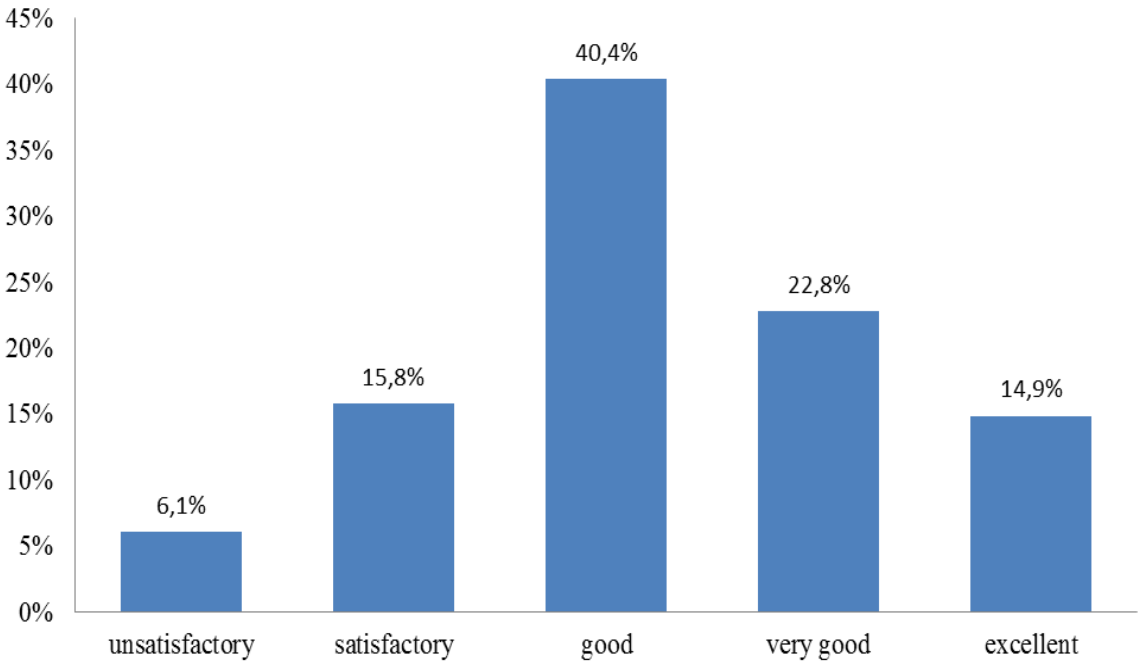


**Fig. 10. Comprehensive assessment of the patients regarding the care for them in hospital conditions (%)**

The highest percentage of patients rated the care as good 40.4% (46) and very good 22.8% (26). According to 6.1% (7), care was unsatisfactory.

Patients were given the opportunity to determine their own condition at the time of the survey (Fig. 11).

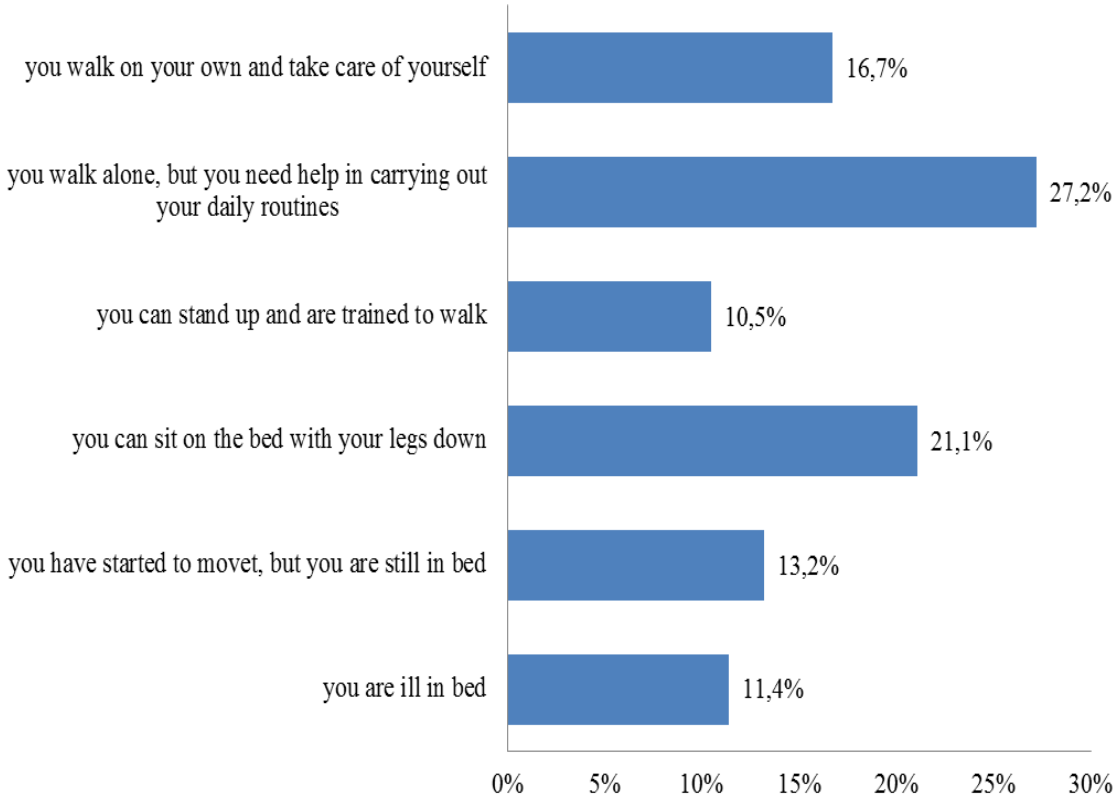


**Fig. 11. Self-assessment of the patients regarding their condition at the moment in the ward (%)**

Completely dependent on care were 11.4% (13) of the respondents, they are in the first hospital regimen. The highest ratio of patients 27.2% (31) was partially dependent on care, i.e. they needed assistance in their daily routine. The ischaemic stroke did not make 16.7% (19) of the individuals dependent on care. In conclusion, it could be summarized that **83.3% (95) of the surveyed patients were dependent on care to varying degrees**.

Approximately two thirds of the respondents 79.8% (91), after discharge from the hospital would recover at home, 17.5% (20) in the home of close relatives, and 2.6% (3) in a hospice. Regarding the patients' confidence in the favorable outcome and their mental peace, 67.5% (77) felt calm about their recovery, two of them did not answer, and 30.7% (35) were negative. Namely, the negative patients were the most vulnerable and in need of attention and care. These patients often become depressed and demotivated for coping and treatment. Nurses would play a

key role in finding out such conditions in patients and developing a plan with an algorithm of actions and behaviors to change the patient's attitudes in a positive direction.

### 2.6. Results of an expert evaluation of a standardized care plan for PSIS

In fulfillment of one of the tasks of the research and on the basis of the results from the surveys of the target groups, a draft for a standardized nursing care plan for PSIS was worked out. For verification purposes, the draft was submitted for expert evaluation. Twenty-two experts were invited to participate in the study, of which 21 responded (Table 9):

**Table. 9. Distribution of experts by level of management**

| **Senior Management - 2 experts *including:*** | **Intermediate Level – 11 experts *including:*** | **Lower level - 8 experts *including:*** |
|---|---|---|
| Expert group on health care at the Ministry of Health **1 expert** | Heads of Departments in MU **7 experts** | Senior health care managers **4 experts** |
| Representative of BAHPN **1 expert** | Head of a clinic in medical facility **3 experts** | Habilitated lecturers **4 experts** |
| | Director Medical College **1 expert** | |

As it turned out, representatives of all three levels of management were included in order to achieve the most adequate and accurate assessment of the proposed standardized nursing care plan for PSIS. Experts at the intermediate level managed, supervised and evaluated the work of the individuals representing the group of the operational management, as well as reported on the results of their activities to the senior management. The coordinating management took an important place in the care management of care, which was missing in the implementation of the activities of nurses for PSIS.

The analysis of the expert group showed that most of them had the degree of PhD – 13 people.

The majority of experts (12) had over 30 years length of service, which was a guarantee for long professional experience and, accordingly, a more accurate assessment of the evaluation materials provided.

According to 18 of the respondents, the standardized nursing care plan would be useful in developing an individual nursing care plan. Two of the experts could not judge it, and one of them disagreed.

Most of the participants in the expert group (19) believed that the standardized nursing care plans might be applied to patients with the same medical diagnosis and the professional activities included in them were sufficiently comprehensive.

The opinion of the evaluators was unanimous in determining the nurse's activities. Nineteen of the experts were convinced it would be good to distinguish the autonomous activities from those prescribed by a doctor, i.e. as proposed in the draft.

Further to the standardized nursing care plan, four scales were proposed for expert evaluation to assess the patient's individual nursing needs. These scales were defined by the experts as the main tool required for assessment of the individual needs of a patient with an ischaemic stroke. Only one of the experts could not judge it. According to 18 of the respondents, the application of the four scales would provide essential information needed to draw up an individual nursing care plan.

The results of the expert evaluation revealed that over 18 members of the expert group considered that the fifteen needs included in the Care Dependency Scale corresponded to Ordinance No.1 of 8 February 2011 on the professional competencies of health professionals in nursing.

All experts (21) approved of the application of the Care Dependency Scale (CDS) in planning the individual nursing care for the patient.

Almost all experts (20) believed that the Fall Risk Assessment Scale (FRAS) was understandable and fully applicable in planning nursing of care for patients who had survived an ischaemic stroke.

The answers of 19 of the respondents who believed it was necessary to use the Functional Independence Scale (FIS), which would supplement the information on the degree of dependence of the patient, were identical. The same number of experts believed that the Scale for

Determining the Risk of Decubitus (SRD) was of great importance for patients who had survived an ischaemic stroke.

The majority of the expert group supported the statement that the use of the four rating scales would result in better quality of nursing care for PSIS.

The statement that the collected objective data about the patient through the proposed scales should be registered in adequate documentation was supported by 17 experts, one of them gave a negative answer, one could not judge, and two of the experts did not give an answer.

Of interest was the opinion of the experts on the possibility of differentiated pay in the field of nursing care proposed in the draft standard nursing care plan. Twelve participants in the expert group took a stand on this issue, seven could not judge, and two were negative.

Almost all participants in the expert group (20) indicated the difficulties to be expected in the introduction of the **Standardized Nursing Care Plan for patients who had survived an ischaemic stroke** in practice.

When analyzing the results of the expert assessment, it was noticeable that the most frequently mentioned difficulty in implementing the standardized plan was the “resistance” by the health professionals.

## III. TOOLS FOR ASSESSMENT AND NURSING CARE PLANNING FOR PSIS

### 3.1. Standardized nursing care plan for patients survived an ischaemic stroke.

Nursing care planning (NCP) had been a formal process that involved properly identifying the existing needs as well as making out the potential needs or risks.

**Nursing care plans could be informal or formal:**

The informal nursing plan has been an action strategy that exists in the mind of the nurse.

The formal nursing plan has been a written or computerized guide that organizes the information needed for the care for PSIS. Formal nursing care plans were further subdivided into a standardized nursing care plan and an individual nursing care plan:

***The standardized nursing care plans defined the medical care for groups of clients with similar daily needs.***

The developed "Standardized Nursing Care Plan" for PSIS aimed to support the behavior of nurses and trainees majoring in Nursing in the implementation of professional health care in a hospital for patients over 18 years diagnosed with an ischaemic stroke.

**The developed "standardized plan" covered sixteen professional activities performed by the nurse independently in the medical institution.**

The standardized nursing care plan was prepared to define the patient's individual needs. By means of four scales for assessment of the patient's condition, included in the standardized plan, the aim was to collect objective data about the patient, on the basis of which it was possible to make an ***individual nursing care plan***:

- Care Dependency Scale
- Johns Hopkins Fall Risk Assessment Tool
- Motor Deficit Severity Assessment Scale using Fim test
- Scale for Determining the Risk of Decubitus after D. Waterlow

The developed standardized nursing care plan listed thirteen professional activities performed by the nurse prescribed by a doctor for PSIS.

The standardized nursing care plan was drawn up in line with the regulations listed in appendix 6 of the dissertation thesis. The idea of the standardized nursing care plan was to unify the care of patients with a specific diagnosis, in this case patients who had suffered an ischaemic stroke. One of the activities included in it was the preparation of an individual nursing care plan

for a specific patient with an ischaemic stroke. Following the nursing process, care planning had been based on objective and subjective data about the person. Getting subjective data about the patient was the practice for nurses and midwives in Bulgaria however the objective data had been one of the challenges facing the modern practice of health professionals in nursing. At present in our country there had no approved practices for collecting objective data about the patient in the development of an individual nursing care plan. One of the possibilities for collecting objective data for the patient was the use of well-established assessment scales. Assessment scales as a tool in the diagnostic process were known and used in our practice. Well known in our country for example, *the Glasgow-Liege Scale, the National Institute of Health stroke scale (NIHSS), the Johns Hopkins Fall Risk Assessment Tool, the Braden Risk Assessment, etc.*

In the international nursing practice one of the familiar and used scales was the **Care Dependency Scale** (CDS).

In response to the nursing practice objective needs, an evaluation tool called the *Care Dependency Scale* (CDS) was developed in the Netherlands in 1994 to evaluate the needs and care planning for institutionalized patients (Dijkstra, 1998). The target group for which the scale (CDS) was developed included patients in long-term need of care and living in homes for elderly and homes for mentally handicapped patients. As care dependence might be considered as a variable in its intensity, a scale had been developed to evaluate and measure 15 vital needs/indicators of care dependence on a five-point scale of Likert ranging from 1 (fully care-dependent) to 5 (almost independent) (Dijkstra et al., 1998), as follows:

1 = **Complete dependency on others' care** – There is no initiative for action, therefore care and assistance for the patient was constantly needed;

2 = **High dependency** – There are many restrictions to act independently, therefore, the patient depends largely on care and assistance;

3 = **Partial dependency** – There are restrictions on independent action, therefore the patient is partially dependent on care and assistance;

4 = **Limited dependency** – There are few restrictions on the patient to act independently, therefore, the patient is only to a limited extent dependent on care and assistance;

5 = **Almost independent** – The patient can do almost everything without help.

Each vital need was evaluated according to the nurse's judgment; then the scores for each were summed. The higher the overall score, the more independent the patient was. It had been found that in patients with a total CDS score ≤ 68 (exclusion point) they were classified as dependent on care, for all others the dependence on care was partial (Dijkstra et al., 2005).

**The JOHNS HOPKINS Fall Risk Assessment Tool** pointed seven conditions in which there was a risk of falling and injuring the patient. Each status specified in the scale carried a certain number of points, which were summed (if no status was selected, the result for the category was 0). The scoring result was: 6-13 overall points = moderate risk of falling; > 13 overall points = high risk of falling. The nurse should implement appropriate interventions to prevent falls in case of risk.

**Motor Deficit Severity Assessment Scale using Fim test** contained 18 elements (daily routines), which were rated from one to seven on the Functional Independence Scale, with a score of seven showing that the patient was completely independent in the specific activity. The score *one* for an element meant that the patient needed complete assistance with the activity. Therefore, the minimum FIM score was 18 and the maximum score was 126, which indicated complete independence. The evaluation could range from complete patient support to full independence, with optimal emphasis on day-to-day activities for optimal recovery and independence of patients with consequences of cerebro-vascular disease (A. Bisset, M. Hondrodimou, P. Mincheva, 2018).

**The Scale for Determining the Risk of Decubitus after D. Waterlow** was used to evaluate the risk of developing decubitus. The scale included 10 risk factors, and each criterion of the risk factors had a score from 0 to 8.

The results were added (S. Mukhina, I. Tarnovskaya, 2006) and the degree of risk of decubitus was determined on the following scale: no risk – 1 to 9 points; there is a risk – 10 points; high degree of risk – 11 to 15 points; very high degree of risk – 16 to 20 points.

### 3.2. Individual assessment form and individual nursing plan for PSIS.

The individual assessment form for PSIS *(CP No. 50 – diagnosis and treatment of ischaemic stroke without thrombolysis)* was worked out in accordance with the severity of the stroke as assessed by a doctor.

The individual assessment form contained the three names of the patient, the date of birth, Clinic/Department, medical diagnosis and the overall ratings of the proposed in the standardized nursing care plan – ***evaluation scales*** for each day of hospital stay.

The nursing care was planned on the basis of this evaluation of the patient's needs.

***The nursing care plan*** comprised the main elements of care planning – date and time of the problem identification or nursing diagnosis, it outlined whether the problem and the action plan had been discussed with the patient, determined the goal that had to be achieved at the end of the treatment and made an assessment of the results. The nurses were identified by a signature when preparing the plan and when reporting the result.

***The model plan for individual nursing care for patients with an ischaemic stroke*** had been proposed to facilitate the nurses to identify the problem, the goal and the nursing interventions when planning care for PSIS. Based on the assessment made, the nurse defined the patient's needs and determined the goals, nursing interventions and expected results of care.

### 3.3. Health Care Handbook for PSIS at home

The proposed Health Care Handbook for PSIS at home had been developed for people with an ischaemic stroke to be assisted by their family to cope with the daily routine and reduce the risk of complications after having an ischaemic stroke.

The purpose of home care was to gradually restore the independence of the ischaemic stroke survivors that would affect their independence, satisfaction, self-esteem and quality of life. The handbook contained a brief introduction and a presentation for the stroke patients and their family the need for care and its importance for people who had survived an ischaemic stroke.

The handbook contained the basic rules for caring for survivors of ischaemic stroke at home. The content had been divided into seven sections covering the most necessary needs of the stroke patient during the recovery process.

## IV. CONCLUSIONS, CONTRIBUTIONS AND RECOMMENDATIONS

**Our research allowed us to draw the following more significant conclusions:**

1. The hypothesis was confirmed that at present in Bulgaria **it was not possible to discuss the efficient nursing care management in patients who had experienced ischaemic stroke, due to the fact that nursing care planning as the first basic managerial function had not been documented.** Over half of the practicing nurses, 55% (41), stated they did not use a "nursing care plan" in their day-to-day care for PSIS.
2. Over two thirds of the surveyed health professionals in nursing 69% (52) were familiar with the concept of a "nursing care plan", which confirmed the hypothesis that nurses were theoretically well trained to plan care for PSIS. **The main purpose of the nursing care plan, according to the respondents, was the individualization of care, which was also applicable after the discharge of the patients who had survived an ischaemic stroke.**
3. In the basic training of the students majoring in Nursing, they acquire knowledge and skills on nursing care planning as part of the nursing process, but in terms of care for patients with an ischaemic stroke, the respondents **needed specialized postgraduate training**. The limited opportunities for regulated additional training had been one of the presumed reasons for the high percentage among the graduate nurses who did not wish to work in a neurology department/clinic, despite the experience they told to have.
4. The percentage of the individuals from the covered groups – students 82% (98); teachers 78.8% (26); practicing nurses 76% (57), who approved of **the introduction of standard and individual nursing plans, required and applicable in clinical and home settings, to ensure continuity, objectification, evaluation and follow-up of the implemented nursing care**, was high. That conclusion had confirmed the first and second hypothesis where we assumed that in our country the planning of nursing care for PSIS should be optimized, individualized and documented in standardized forms.
5. The nursing care managers believed that **care planning in acceptable documentation would allow a certain algorithm of behaviour to be followed that would optimize the activities of nurses in their care of patients.**
6. The hypothesis that there were no approved forms for determining the individual care needs was also confirmed by all experts of the proposed "***Draft Standardized Nursing Care Plan for Patients with an Ischaemic Stroke***". According to them, **the use of scales to assess the**

**patient's condition with an ischaemic stroke, the development and implementation of appropriate documentation had been a prerequisite for improving the quality of care provided to these patients.**

7. Almost all surveyed patients 85.1% (97) preferred to be cared for by their family after being discharged, which was an objective prerequisite for the development of a "***Health Care Handbook for Patients who had Survived an Ischaemic Stroke in an Outpatient/Home Setting***". Over half of the surveyed patients 60.5% (69) believed that written instructions for home care were necessary.

**Contributions of Theoretical and Informative Nature**

1. A comprehensive study of the need for care planning for patients with an ischaemic stroke had been carried out as an obligatory prerequisite for the effective nursing care management both in hospital and after discharge.
2. The need to implement standard and individual nursing care plans in hospitals and at home had been proven.
3. The main problems of nurses related to the nursing care planning for patients with an ischaemic stroke had been analyzed.

**Contributions of Applied Nature**

1. **A Standardized Nursing Care Plan for Patients with an Ischaemic Stroke** (CP No. 50 Diagnosis and Treatment of Ischaemic Stroke without Thrombolysis) and an **Individual Patient Assessment Form and Care Planning** had been developed.
2. A set of scales was proposed for assessment of the patient's condition and his/her dependence on care, which made it possible to objectify the information about the patient, as well as to plan the care adequately to the needs.
3. A "Handbook for Patients who had Survived an Ischaemic Stroke in an Outpatient/Home Setting" had been developed to help people caring for a patient who had suffered an ischaemic stroke during the recovery period in dealing with the daily routines and ensuring continuity of care after discharge.

## Recommendations

### To the higher schools training students majoring in Nursing

Based on the social significance of brain stroke and in particular an ischaemic stroke in global and European aspect and on the growing rate of disability of survivors of cerebrovascular accidents, we recommend:

1. Inclusion in the educational process of developed standard nursing care plans for PSIS, and the respective scales for assessment of the patient's condition, adapted to the qualification framework of the Republic of Bulgaria
2. Inclusion in the educational process of an Individual Patient Assessment Form and Care Planning, which are uniform for all higher education institutions.
3. Inclusion of the speciality "Nursing Care for Neurologically Ill Patients" in Ordinance No. 1 of 22.01.2015 for acquiring a speciality in the health care system.

### To the Bulgarian Association of Health Professionals in Nursing

- ✓ On the basis of the proposed in this paper Standardized Nursing Care Plan for patients with ischaemic stroke (CP No. 50 diagnosis and treatment of ischaemic stroke without thrombolysis) to support the application of scales to assess the patients' condition in real practice and the introduction of an individual patient assessment form and care planning, developed on objective data.
- ✓ Periodic control and evaluation of the nursing activities, recorded in the nursing documentation – form for an individual patient's evaluation and nursing care plan and presentation of the achieved results.

## PUBLICATIONS AND RESEARCH ANNOUNCEMENTS RELATED TO THE DISSERTATION THESIS

### Publications related to the dissertation thesis

1. **Balaburova, M.**, E. Dimitrova, D. Vacheva, M. Draganova, V. Gesheva and K. Petrova, Nursing care plan for brain stroke patients hospitalized in the Department of Hospital Rehabilitation. Second National Student Session, MU – Pleven, FHC, Proceedings, 2014, p. 193-200, ISBN 978-954-756-153-3 (electronic source); 978-954-756-152-6 (supplement)

2. Ivanova, M., **M. Balaburova**, M. Draganova, S. Elkina, D. Vacheva, Nursing care plan for patients with type 2 diabetes mellitus who have suffered brain stroke. Sestrinsko Delo, 47, 2015, No.1, 11 – 16, ISSN 1310-7496 UDK 641.253.5

3. Draganova, M., **M. Balaburova**, The needs of care for patients who had survived an ischaemic stroke, according to graduates, majoring in Nursing. Zdrvni Griji, issue 4, XVII, 2019, 5-10, ISSN 1312-2592

4. **Balaburova, M.,** M. Draganova, Planned nursing care - a main element of health care management for ischaemic stroke patients. Journal of Biomedical & Clinical Research (JBCR), Number 1, Volume 13, 2020, 35-40, ISSN 1313-6917

### Announcements related to the dissertation thesis

1. **Balaburova, M.,** M. Draganova, Nursing care plan – reality and perspectives. Journal of Biomedical & Clinical Research, Medical University – Pleven, Volume 7, Number 1, Supplement 2, 2014, p. 90 – 91

2. **Balaburova, M.,** M. Draganova, K. Petrova, V. Danova, Need for comprehensive care in patients after brain stroke. Third National Student Session, MU – Pleven, March 26-27, 2015, FHC, Proceedings of abstracts, p. 70

3. **Balaburova, M.,** M. Draganova, Approaches for nursing care planning. Journal of Biomedical & Clinical Research, Medical University – Pleven, Volume 8, Number 1, Supplement 1, 2015, p. 59 – 60

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5. **Balaburova, M.,** T. Draganova. Trends and prospects of trainee nurses in cares for patients with strokes. Nursing Diagnosis & Midwifery 2018, Journal of Nursing and Health Studies, 2018 Volume: 3, September 10-11, Prague, Czech Republic, page 62, ISSN: 2574-2825

6. **Balaburova M.,** M. Draganova, Significance of planned nursing care for patients with brain stroke, according to pre-graduated students, trained for nurses, International Conference on Advance Nursing, Midwifery & Gynaecology, Journal of Nursing and Health Studies, 2019, Volume: 4, May 23 - 24, 2019, Stockholm , Sweden, p. 56, ISSN: 2574-2825

ABSTRACT

## NURSING CARE MANAGEMENT IN PATIENTS SURVIVING ISCHAEMIC STROKE IN BULGARIA

**Introduction:** Sound management of nursing care for patients who have survived ischaemic stroke plays an essential role in improving access to health care, achieving a higher quality of the care provided, reducing costs of health care facilities, and increasing satisfaction of both patients and their relatives with the nursing care provided.
The study aimed to analyse nursing care given to patients surviving ischaemic stroke, identify problems and propose appropriate measures to improve nursing care for such patients.

**Material and methods:** The study included 372 respondents: 114 patients with ischaemic stroke, admitted and treated at clinics/departments of neurology and physiotherapy and rehabilitation in two university hospitals and four multidisciplinary hospitals for active treatment in Pleven, as well as 122 students in nursing during their pre-graduation training; 33 teachers in nursing care from three higher schools; 75 graduate nurses; 7 nursing care managers employed in clinics/departments of neurology and 21 experts for the assessment of a draft on a standardized nursing care plan for patients with ischaemic stroke. It is a complex sociological study using content analysis of various documentation, self-administered questionnaires, expert evaluation, and statistical methods. The study was conducted from March 2016 to December 2021. The data was processed with IBN SPSS Statistics 25.0 and Microsoft Excel 2010.

**Results:** More than two-thirds (69%) of the health care professionals were acquainted with the essence of the concept of a nursing care plan. However, 55% of them stated they did not use such a plan in their routine everyday nursing care for patients with ischaemic stroke. Nevertheless, those who approved introducing standard and tailored nursing care plans, applicable in clinical and home settings to provide continuous care, objective evaluation, and control on the care given constituted a high relative share. Approval was stated by 76% of the clinical nurses, 82% of the pre-graduate students in nursing, and 78.8% of the respondents teaching nursing care. Managers of nursing care believed that planning nursing care would provide the opportunity to follow a set of algorithms of practices that would optimize the nursing care of patients.

**Conclusion:** The results from the study aiming to investigate the nursing care needs of patients with ischaemic stroke and the approach proposed to introduce a standard nursing care plan for such patients would contribute to increasing the quality of care and more rapid recovery of ischaemic stroke patients.

**Keywords:** ischaemic stroke, nursing care plan, quality of nursing care