

REVIEW

by Assoc. Prof. Katya Genova Eguruze, PhD
Department of Health Care, Faculty of Public Health
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for the dissertation of Kichka Dimitrova Trendafilova

**on the topic: IMPROVING THE QUALITY OF LIFE IN CHILDREN WITH
THERMAL INJURY**

For the award of the educational and scientific degree "Doctor"

Field of higher education 7. Healthcare and Sports

Professional field 7.4. Public Health

Specialty "Health Care Management"

With scientific advisor: Prof. Silviya Borisova Dimitrova, PhD, DSc.

By order No. R-109-66/06.03.2024 of the Rector of the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna, I have been selected as a member of the Scientific Jury. Based on Protocol No. 1/11.03.2024, I have been designated to prepare a review for the procedure of awarding the educational and scientific degree "Doctor" to the candidate Kichka Dimitrova Trendafilova at the Medical University – Varna.

Procedure data

Kichka Dimitrova Trendafilova was enrolled as a full-time doctoral student in the doctoral program "Health Care Management" in the field of higher education 7. Healthcare and Sports, professional direction 7.4. Public Health, by Order No. R-109-42/31.01.2020 of the Rector of the Medical University – Varna. A protocol for a successfully passed doctoral examination has been presented.

Based on the report with incoming No. 102-591/21.02.2024 by Assoc. Prof. Katya Genova Eguruze, Ph.D. – Head of the Department of Health Care, with a decision according to Protocol No. 221/28.02.2024 of the Faculty Council and the report with incoming No. 104-298/05.03.2024 by the Dean of the Faculty of Public Health, she was dismissed with the right to defend by order of the Rector of the Medical University – Varna No. R-109-66 from 06.03.2024.

All necessary documents have been submitted as required by the Law on the Development of the Academic Staff in the Republic of Bulgaria, its Regulations, and the Regulations for the Development of the Academic Staff at the Medical University – Varna.

Biographical Data and Career Development of the Doctoral Candidate

Kichka Dimitrova Trendafilova obtained her associate degree in the specialty "General Profile Nurse" from the Higher Medical Institute - Varna in 1996, and in 2001, she earned her bachelor's degree in "Health Care" from the Medical University – Sofia. Her commitment to continuous development led her to complete a master's degree in "Public Health" in 2004 and another master's degree in "Health Care Management" in 2012 from the Medical University – Varna. In 2023, she acquired a specialization in "Hospital Hygiene (Prevention and Control of Infections)".

Her professional career began in 1996 at the City Hospital – Varna, in the Emergency Therapeutic Office, where she worked as a nurse, later becoming a senior nurse at Diagnostic Consultation Center 1 "St. Clementina" in the emergency department. From 2003 to 2022, she served as a senior nurse in the Clinic of Thermal Trauma, Plastic-Reconstructive, and Aesthetic Surgery at the Multiprofile Hospital for Active Treatment - Varna under the Military Medical Academy - Sofia. Since 2022, she has been the senior nurse of the Gastroenterology Department specializing in oncological diseases at the Specialized Hospital for Active Treatment of Oncological Diseases "Dr. M.A. Markov – Varna."

From 1999 to 2015, she was a part-time instructor in practical training for students in the "Nursing" specialty at the Medical University – Varna and participated in conducting pre-diploma internships for students in the "Health Care Management" specialty. She has participated in conferences and scientific forums, with publications and scientific reports, some of which are related to her dissertation work. She has also attended numerous continuing education courses. She is proficient in English and Russian, both written and spoken.

General characteristics of the dissertation

The dissertation is presented in a total of 207 pages, with the standard structure for the professional field, in five chapters. Literature review - relevance of the problem - 70 pages; 2. Aim, objectives, material and methodology of the study - 11 pages; 3. Results and discussion - 52 p.; 4. Practical approaches to optimize nursing care in children who have suffered thermal trauma - 22 pp; 5. Conclusions, suggestions and contributions - 4 p. ; Publications on the topic - 1 p. ; References - 13 p. ; Appendices - 28 p. A good balance between the different parts has been achieved.

The work is richly illustrated with 50 figures, 11 tables and 5 appendices.

The bibliographical list includes 200 titles, 79 in Cyrillic, 121 in Latin.

Assessment of the relevance of the topic

Thermal injuries represent a significant global health issue with medical, social, and economic implications. They are among the most devastating of all injuries, leading to serious consequences for both adults and children. Burns are particularly challenging traumatic injuries, distinguished by their high mortality rates, and for survivors, therapy can extend for months or even years. Effective burn care relies on standardized algorithms and approaches aimed at

delivering quality care at each stage of the treatment process. In Bulgaria, the limited number of specialized structures for burn treatment necessitates that therapy and care for burn patients may be conducted in any surgical unit. Consequently, the caregivers, nurses in this case, must possess knowledge and practical skills in line with their professional competencies to plan care according to the requirements of established algorithms and protocols.

Evolved through its historical development, burn treatment in our country has transitioned from traditional and folk medical practices in the past to the advancement of methods for treating thermal trauma through the development of more effective measures today. The establishment of specialized institutions and centers equipped with the necessary equipment, consumables, and staffed by specialists in the field of burns plays a crucial role in the management and treatment of thermal injuries.

Statistical data from recent years indicate that thermal injuries in children account for approximately 40-45%, varying in type and nature. Burns range from minor injuries that can be treated in outpatient settings to moderate or major injuries, sometimes combined with other traumatic injuries necessitating hospitalization in an intensive care unit. The seriousness of the problem necessitates increased attention from medical teams in the treatment and care of children with thermal trauma, aimed at preserving and enhancing their quality of life.

All of these factors make the topic of Kichka Dimitrova's dissertation significant, relevant, and dissertation-worthy.

Chapter One: Literature Review – Relevance of the Problem

The literature review is structured into four parts, each sequentially and thoroughly tracing the main aspects related to the doctoral candidate's research problem. The analysis of precisely selected scientific information is competently directed towards the needs of the specific study.

It commences with a historical overview of thermal trauma, where alongside the evolution of burn science, significant attention is given to plastic surgery worldwide and in our country. The candidate has thoroughly examined and described the fundamental aspects of thermal trauma: the types of burns, depending on the influence of high temperature, burn classification, rules for determining the percentage of body surface area affected, and severity.

In the third part of the literature review, special attention is devoted to thermal injuries in children. The types and causes of burns in young children are outlined, risk factors are identified, differences between thermal trauma in children and adults are presented. The candidate has extensively presented care for children in outpatient and inpatient settings depending on the severity of the injury.

Kichka Dimitrova's experience and knowledge contribute to the accurate and in-depth analysis of nursing activities and care applied in the treatment of patients with thermal trauma. This includes presenting the necessary professional nursing competencies in performing specific surgical techniques in plastic-reconstructive and aesthetic surgery, handling emergencies, performing cardio-pulmonary resuscitation, and working with children. Factors influencing the quality of nursing care are analyzed. Specific care in intensive care units and measures for

infection prevention related to medical services are outlined. A review of burn treatment worldwide and in our country is conducted.

The literature review concludes with several significant conclusions drawn.

The logically structured literature review and literature reference demonstrate the rich knowledge and good professional preparation of the doctoral candidate on the topic.

Chapter Two: Research Methodology

The methodology of the study is elaborately developed and includes: the aim, objectives, hypotheses, material, and methodology of the research.

The aim of the dissertation work is clearly and specifically defined as: "To analyze the organization of healthcare for children who have suffered thermal trauma and to identify the challenges facing current practice and potential areas for improvement in quality of life during the recovery period."

Seven objectives are outlined to achieve the aim, covering all aspects of the research conducted by the doctoral candidate. Five research hypotheses are formulated.

The material and methodology of the research are accurately described and include: the subject and object, logical units, and the territory of the study.

The research design comprises both theoretical and empirical studies, which are extensively described. The empirical research includes:

- Qualitative study among parents regarding the impact of thermal trauma on the physical, mental, and social well-being of children.
- Quantitative study among medical specialists and parents regarding the possibilities of providing a supportive environment during the recovery period and achieving coordination of healthcare.

The quantitative study involves conducting standardized interviews and direct individual surveys with a total of 314 individuals distributed into the following groups:

1. First Group - Parents of children who have suffered thermal trauma and were hospitalized in a specialized surgical facility for thermal trauma treatment (n=172).
2. Second Group - Parents of children who have suffered thermal trauma with over 20% body surface area affected, hospitalized in a specialized surgical facility for thermal trauma treatment (n=10).
3. Third Group - Medical nurses working in clinics/departments with a surgical focus where children with thermal trauma are hospitalized (n=61).
4. Fourth Group - Specialists working in childcare institutions (n=57).
5. Fifth Group - Experts - medical specialists, team leaders for the treatment and care of children with thermal trauma (n=10).

Inclusion and Exclusion Criteria:

The criteria for inclusion and exclusion of individuals in the study have been defined. The stages of the scientific research are detailed, reflecting specific activities, the tools used, and the timeline.

Research Instruments:

The applied toolkit is self-developed and includes two questionnaires: one for conducting in-depth interviews (for parents of children with thermal trauma over 20%) and one for conducting standardized interviews (for experts), as well as three versions of survey cards:

- Survey Card No. 1 to study the opinions of medical nurses working in clinics/departments for the treatment of thermal trauma.
- Survey Card No. 2 to study the opinions of parents of children who have suffered thermal trauma and were hospitalized in clinics/departments for treatment.
- Survey Card No. 3 to study the opinions of medical and non-medical specialists working in childcare institutions in the territory of Varna (childcare centers and kindergartens).

The toolkit is tailored to the specifics of gathering information, thoroughly described, and presented in the dissertation work.

The candidate has presented a wide range of methods appropriate to the set goals and objectives: sociological and statistical methods for data processing and analysis.

Results and Discussion

The dissertation presents the obtained results from the conducted research, structured and logically organized in Chapter Three, following their statistical processing. The presentation of the results for each of the studied groups begins with a comprehensive socio-demographic characteristic, which allows for interesting conclusions.

Within the scientific research, an analysis of the opinions of 182 parents of children who have experienced thermal trauma was conducted, including 172 parents of children who have been hospitalized and 10 parents of children with thermal trauma covering more than 20% of their body surface. The children were hospitalized in specialized surgical facilities for burn treatment located in the cities of Sofia, Plovdiv, and Ruse. For the purposes of the study, a survey was conducted among 61 nurses working in clinics for thermal trauma, plastic-reconstructive, and aesthetic surgery at the University Multifunctional Hospital for Active Treatment and Emergency Medicine "N. I. Pirogov" in Sofia; University Multifunctional Hospital for Active Treatment "St. George" in Plovdiv, and University Multifunctional Hospital for Active Treatment "Medika Ruse". The opinions of educators and medical specialists working in a childcare facility in the territory of the city of Varna were also investigated. Specialists in childcare facilities are directly involved in the daily care of children and are familiar with the specific challenges and their needs.

It is impressive that the majority (72.1%; n=44) of the respondents among the nurses hold a "higher - bachelor's" and "higher - specialist" educational qualification, guaranteeing very good professional training, while those with secondary education account for 11.5% (n=5). It is categorical that the majority of nurses have been trained under modern educational programs and/or have furthered their education at a later stage.

The analysis of the indicators - age and type of burn - indicates a prevailing percentage (30.56%; n=48) of burns in children aged 4 to 7 years, which corresponds to global trends observed in the observation and analysis of similar types of thermal trauma, with the lowest percentage (11.11%) occurring in children under 1 year old. The hypothesis emerges that burns

from hot liquids predominate in children, accounting for 48.61% (n=84), while the lowest percentage (1.29%; n=3) is for electrical burns, which occur in children aged between 13 and 18 years. This is a statistically measurable indicator but with a poor prognosis. The injuries are significant, sometimes difficult to overcome, and can last a lifetime. The occurrence of thermal trauma is usually a sudden and unexpected event, resulting in serious consequences for the victim and their entire family. In cases of serious thermal injuries, long-term physical and psychological problems may arise, requiring prolonged treatment, medical supervision, rehabilitation, and support. The conducted in-depth interviews with parents of children with thermal trauma covering more than 20% of the body surface present different cases and provide information about parents who have experienced similar situations. The commonality among all responses from the respondents is that the event occurred suddenly, unexpectedly, and the parents were not prepared for it. The incidents have left a serious emotional impact on the relatives, bordering on states of shock and helplessness. This reflects the complexity of the problem and emphasizes the need for comprehensive preventive measures and support for children with thermal trauma and their families.

The treatment of children with thermal trauma can be conducted on an outpatient or inpatient basis, following hospitalization in a specialized facility. The length of stay in the healthcare facility for burn treatment influences the patient's recovery. The recovery period begins from admission to the medical facility and sometimes lasts for months or even years. It varies depending on the nature of the trauma and the duration of treatment. The analysis shows that all respondents in the study understand the seriousness of the problem and unanimously express the opinion that children with thermal trauma require specialized assistance and support during the recovery period. The establishment of structures combining medical, rehabilitation, and psychological aspects of care would guarantee the best recovery and improve the quality of life for children after the trauma.

Experts unanimously (100%) emphasize that continuous training and professional development of nurses in healthcare facilities will ensure the best quality of care for children with thermal trauma. They outline the competencies that each nurse in the multidisciplinary team should possess.

In Chapter Four titled "Practical Approaches to Optimizing Nursing Care for Children who have Experienced Thermal Trauma," an Organizational Framework encompassing multiple factors such as treatment, psychological support, rehabilitation, social integration, and support for families has been developed and presented. It covers various aspects of therapy and support for the affected children. Each of the proposed elements within it can be further developed and adapted according to the specific needs of the children and their families. The developed Organizational Framework with guidelines for work optimizes the recovery period of children following thermal trauma in a Center for the Recovery of Children who have Experienced Thermal Trauma.

The quality of healthcare is expressed in providing each patient with activities aimed at improving their health and ensuring their satisfaction. Contemporary nursing has a mission,

namely to guarantee a high quality of healthcare for the population. The developed Patient (Child) Condition Assessment Checklist aims to assist in gathering and analyzing information about the injured, reduce anxiety, and guide the nurse in the process of planning and providing care.

In order to analyze all possibilities for improving the quality of healthcare and specifically supporting the recovery period in children with thermal trauma, the SWOT analysis method has been applied. Thanks to this, those important factors necessary for improving the quality of healthcare in the process of treating thermal trauma and subsequently supporting the recovery process have been identified. The strengths and weaknesses in planning and implementing healthcare in structures for treating thermal trauma in Bulgaria have been identified.

Chapter Five, "Conclusions, Recommendations, and Contributions," formulates 10 conclusions that logically stem from the preceding analysis, accurately reflect the results obtained from the conducted theoretical and empirical research, and demonstrate alignment with the purpose and objectives of the presented work.

The recommendations made to the Ministry of Health and the National Health Insurance Fund, the Ministry of Education, and the management of healthcare facilities are persuasive and directly relevant to the addressed issue.

The contributions in the dissertation have both theoretical and practical-applied character, which I appreciate.

In connection with the dissertation, the doctoral candidate presents a list of publications and participations in scientific forums, containing three titles related to the topic of the presented work.

The abstract is structured according to the requirements and accurately reflects the content of the dissertation. I would like to note that from Chapter Four, the structure, activities in the process, and results of the Organizational Framework in healthcare are incompletely presented, which are essential for understanding and improving the quality of care for children with thermal trauma.

Conclusion

The dissertation is the first of its kind, providing a comprehensive, targeted, and in-depth study of the quality and effectiveness of healthcare provided during the recovery period for children who have experienced thermal trauma. It stands out for its relevance, high scientific and practical value. It demonstrates that the doctoral candidate possesses profound theoretical knowledge and professional skills, which attest to her strong potential for scientific research.

I consider that the work fully meets all the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria, its implementing regulations, and the regulations for the development of academic staff at the Medical University - Varna.

Based on the above, I give my positive vote and confidently recommend to the esteemed Scientific Jury to award the educational and scientific degree of "Doctor" to Kichka Dimitrova Trendafilova in the specialty of "Health Care Management".

13.05.2024

Varna

Drafted the review:

Assoc. Prof. Katya Genova Eguruze, PhD

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