

STATEMENT

From Prof. Dr. Karolina Lyubomirova, MD, PhD, MPH, ERT

Head of the Department of Occupational Medicine,

Faculty of Public Health, Medical University of Sofia,

in accordance with № RD-68 / 11.02.2022г.

for DISSERTATION ON THE TOPIC:

**"CHARACTERISTICS OF SHIFTING MODES OF WORK AND
HEALTH RISK IN HOSPITAL CARE"**

Author: Irina Valerieva Tsekova

for acquiring the educational and scientific degree "Doctor"

in the field of higher education: 7. "Health and Sports";

Professional field: 7.1. "Medicine";

Doctoral program: "Hygiene";

Scientific tutor: Assoc. Prof. Katya Vangelova, Doctor of Biology

Biographical data:

Irina Valerieva Tsekova was born in 1982. She graduated from Sofia University "St. Kliment Ohridski" with a bachelor's degree in biology and a master's degree in genetics and genomics. She has worked successively at the Bulgarian Academy of Sciences, the Institute of Plant Physiology and Genetics and the Molecular Medical Center at the Medical University of Sofia. Since 2015 she is an assistant at the National Center for Public Health and Analysis and works in the field of Occupational safety and health, Statistical analysis, Hormonal screening and more.

Relevance of the topic:

The topic of the dissertation is relevant, as in the last decade the share of night shift workers and the variety of shift models and forms of employment has increased, which raises new questions in ensuring health and safety at work. Of particular importance is the assessment of this risk factor on the health of workers in the health care system due to the significantly increased health risk at work in connection with the global pandemic of 2020.

Structure of the dissertation:

The dissertation is presented on 167 standard pages and is illustrated with 27 figures and 49 tables. The bibliography includes 193 literary sources, 14 of which are in Cyrillic.

The literature review shows the broad awareness of the PhD student on the problem. The historical development and the characteristics of the shift work and the change in the circadian rhythms it leads to are clearly described. The use of literature sources from highly referenced journals makes it possible to make an evidence-based overview of the actions and properties of melatonin and its change in people working at night. The information on socially significant diseases for Bulgaria such as hormone-dependent cancers, cardiovascular, endocrine and digestive diseases and their relationship with shift work at night is of particular importance. A number of individual and behavioral risk factors for the development of cardiovascular, endocrine, digestive and hormone-dependent cancers, which have a complex impact and complement the adverse effects of risk factors in the workplace, are also considered.

The aim of the dissertation is clearly and precisely formulated and is directly related to the topic. The set of 6 tasks logically follow from the goal, allowing good implementation of the planned study.

Research methodology

The methodology of the study is precisely presented, correctly indicating the object and scope of the study, as well as the methods used.

Results

The "Results" section presents the data obtained from the survey of 1260 employees in the health care system - doctors and health care professionals. With the help of modern questionnaires, laboratory and analytical methods it is established that the health specialists in the hospital care of Sofia work mainly rotating shifts with night work with long working hours on a daily and weekly basis, including over 51 working hours per week. Significantly lower early morning levels of melatonin excretion during night work were found compared to morning values before the day shift.

The data from the studied levels of cortisol in saliva confirm the subjective assessment of high levels of stress and increased health risk at night. Of particular importance in the strategic planning of personnel in the health care system is the proven statistically significant deterioration of sleep quality in those working with 5 or more night shifts per month in terms of all sleep characteristics, except for the required amount of sleep. It is convincingly proven that health professionals with a history of night work have a higher incidence of cardiovascular disease, hypertension, digestive diseases and endocrine diseases, as some people with chronic diseases switch to daily work and limit overtime and extra work. The results are especially significant for people working more than 41 working hours per week. An important practical contribution is the finding that the sleep index is a predictor of cardiovascular, endocrine, digestive and mental diseases together with age / work experience, family history of relevant diseases, smoking intensity for CVD and diseases of the digestive system, consumption of alcohol for endocrine diseases, work schedule and working hours per week for endocrine and digestive diseases, sex for mental illness.

The results are illustrated with appropriate informative figures and tables.

Findings:

Based on the obtained results, 9 findings are formulated, which follow logically from the set tasks and summarize the most important results of the dissertation.

The abstract (referat) to the dissertation correctly reflects the structure of the development and contains the most significant results and conclusions of the study.

Publications: As a result of the dissertation 8 publications were presented (4 in foreign editions). In 5 of the publications the dissertation is the first author. The results of the dissertation are presented at 6 scientific forums (5 abroad).

I have no critical remarks on the dissertation.

IN CONCLUSION:

The topicality, the use of modern scientific methods, the significant practical results and the importance of the conclusions and contributions of dissertations, give me the reason to conclude that the work of Irina Valerieva Tsekova meets the requirements of the Law on Academic Development in Bulgaria for acquisition of scientific and educational degree "doctor".

Based on the above, I recommend the members of the scientific jury to vote positively for the award of the scientific and educational degree "Doctor" to Irina Valerieva Tsekova.

Sofia, March 13, 2022

Prof. Dr. Karolina Lyubomirova MD, PhD, MPH, ERT

