

OPINION

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CONCERNING: Ph.D. thesis of assistant Ralitsa Ivailova Stoyanova, Ph.D. student on self-education on the topic "*Stress and work ability of health care professionals in hospitals*"

This opinion was prepared on the basis of Order No RD-20/15 January 2024 of the Director of the National Centre of Public Health and Analyses determining the composition of the scientific jury for conducting the defense of the Ph.D. thesis of assistant Ralitsa Ivailova Stoyanova, PhD student of independent preparation for the award of educational and scientific degree "Doctor" in professional field 7.1. "Medicine", in the scientific specialty "Hygiene".

The dissertation submitted by Ralitsa Ivailova Stoyanova on the topic: "*Stress and work ability of health care professionals in hospitals*", with scientific leader Ass. Prof. Katya Vangelova, PhD consists of 141 pages, 30 figures and 31 tables. The dissertation is divided in chapters, as follows: Introduction, Review of the literature, Purpose and Tasks, Contingent and methods, Results, Discussion, Conclusions, Contributions, References, following the mandatory parts clarifying the list of publications, participation in scientific events, annexes with two questionnaires and recommendations.

The literature review is analytical and is based on 172 sources, 55% of them from the last 10 years. The older sources (from the 90-s or earlier) include publications and books with fundamental information, also methodological ones in the field of work conditions and public health. Authors from the whole world are cited and many Bulgarians. The topic is very topical and can help implement health reform that will increase interest in these specialties, especially needed at the moment in our country.

The dissertation work study the work ability and stress with different methods in different specialists in health care – nurses, midwives and medical laboratory assistants – the specialists who are highly sought after in clinical units and without whom the health system cannot work.

The studied health workers are 1811 health care specialists: 1427 nurses, 176 midwives and 208 medical laboratory assistants from 19 hospitals with different scope of medical services and by number of patients – university, emergency medicine, municipal, private.

The goal set by the PhD student, namely "to assess the stress and working capacity and the determining professional risk factors in health care specialists in the hospital care of the town of Sofia" is important, interesting for occupational medicine and our healthcare, as well as aimed at protecting the health of these specialists.

The tasks set fulfill the set goal by applying subjective and objective methods for assessing working conditions, psychosocial risks, working capacity, emotional and mental exhaustion, stress in health care specialists.

The methods applied are fully adequate and well chosen to achieve the goal set in the dissertation. An anonymous questionnaire of workplaces is attached, which includes information on demographic characteristics and a subjective assessment of working conditions. Stress is assessed with a questionnaire based on the short version of the German Tool for Stress Analysis in Health Professionals. An objective method of studying stress is the study of cortisol in saliva. A study is also the index of working capacity in 7 scales, according to the Finnish Institute of Occupational Health. Here one can see the experience and knowledge of the PhD student (at the Institute of Health and Safety in Dortmund) and her supervisor, who has many years of experience in the field of research on working capacity and stress at work in different branches.

The statistical methods used are adequate, namely: the data were entered and processed with the SPSS 23.0 statistical package; for statistical analyses, ANOVA, χ^2 , step multiple regression analysis, correlation analysis were applied. An analysis for repeated measurements with a significance level of $p < 0.05$ was used to assess shift regimes and risk factors.

The results are presented clearly, well illustrated with graphs and tables and clearly prove the state of the subjective assessment of the studied health workers on working conditions and work organization; their psycho-somatic complaints, emotional and mental exhaustion; levels of cortisol in saliva in the day and night shifts of different specialties in health care; its working capacity and its determinants in the main groups of specialists.

The conclusions are derived from the results and give an assessment for serious anxiety, psycho-emotional tension and exhaustion, stress, despite the assessment of good working capacity of health care professionals. There is also a large percentage of workers with chronic diseases who are aggravated by working conditions and shift mode.

Scientific-theoretical contributions are mainly related to the assessment of psychosocial risks at work of health care professionals, the assessment of their working capacity and its determining factors, as well as to the first application of the method of studying cortisol in saliva in nurses from an intensive sector.

Contributions of a scientifically applied nature are related to the fact that the results of these studies can be the basis for taking differentiated measures to reduce stress and burnout syndrome, to improve the organization of work of medical workers and as such were the basis for the doctoral student to make appropriate recommendations.

I have some comments to the dissertation work.

First of all, the term "specialists health care", which is in the title of the dissertation and is used throughout the text, is not, in my opinion, supported in Bulgarian. Only "health care" in quotation marks is used to name the Department of Health Care, medical standard "health care". In my opinion, in the title the text should be "health care specialists", as in the entire health nomenclature, such as the Bulgarian Health Care Association, professional qualification in health care, health care management, etc.

In addition, "slipping, tripping and falling" should not be classified in the list of physical factors. They may be associated with poor ergonomic solutions to "traumatic events". To physical factors can be added such as UV radiation, laser radiation, radio frequency and other electromagnetic fields and the like, but not the cited actions leading to injuries.

The cited notes do not diminish the value of the dissertation work.

In conclusion, Ralitsa Ivailova Stoyanova has presented a dissertation work that is very up-to-date, carried out according to the requirements for a serious scientific study of medical personnel, who are currently very threatened with "extinction" and are extremely necessary for the health system and for patients.

Due to the above, **I will vote positively for the award of the educational and scientific degree "Doctor"** to assistant Ralitsa Ivailova Stoyanova, PhD student of self-education, in professional field 7.1. "Medicine", in the scientific specialty "Hygiene". I invite other members of the Jury to vote positively.

Sofia
23rd of January 2024

Signature:

(Prof. M. Israel, PhD)

