

## **ABSTRACT**

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The habilitation thesis entitled " Interdisciplinary contributions in hygiene and public health" summarizes the results of the research carried out after the completion of the doctoral studies, in the period 2011-2024.

In the first part of the thesis, the main scientific, professional and academic achievements are presented.

In the first chapter of this part, the importance, results and implications of studies in the emerging field of medical information hygiene, located at the border between hygiene, public health, infodemiology and consumer health informatics, are presented.

The first sub-chapter includes common general landmarks of health information hygiene studies, especially the basic concepts and common methodological aspects, characteristic of this new field of research.

In the second sub-chapter, the results, significance and implications of the breast cancer information quality study, a first both nationally and internationally, and one of the few studies that approached this topic in an evolutionary manner, are reported and discussed. The study showed a poor quality of these sources of information and that in the five-year time frame, no significant improvement was observed.

The third sub-chapter reflects the results of the study on the quality of online information about healthcare-associated infections, a pathology with a serious impact on patients and the medical system. It is the first study of this kind that examined the topic in three languages, English, Romanian and Hungarian. The ratings obtained by the analyzed websites ranged from intermediate to low, with worrisome deficiencies especially regarding the description of symptoms and preventive measures.

The fourth subchapter reviews the results of the study on the quality of information about percutaneous coronary angioplasty. The study stands out for its focus on a widely practiced therapeutic intervention and for the fact that it examined this topic in five languages, with global, regional and local relevance, a unique fact in the specialized literature. The study showed that the internet provides incomplete and unsatisfactory information in terms of scientific accuracy about percutaneous coronary intervention and raised an alarm about the impact of these sources of information on informed decision-making by patients.

The fifth subchapter summarizes the preliminary data of an ambitious meta-analysis on a topic with profound implications regarding the safety of the medical internet. The study tested the hypothesis of the usefulness of Health on The Net credibility criteria as an accessible indicator of the quality of online information for general users. The analysis based on 21 researches conducted between 2018-2021 on a sample of more than 1000 sites in Romanian and English shows, first of all, that HON certification was almost absent in the case of sites in the Romanian language and not very frequent in the case of in English. Secondly, the study showed that the association, respectively the correlation between the credibility of the sites and the quality of the actual medical content was insufficiently strong and consistent to be helpful as a user guidance tool. If further research confirms

the conclusions of this meta-analysis, users and relevant institutions will need to reconsider their practices and recommendations regarding the cautious use of the medical Internet.

In the second chapter of the first part, the results of interdisciplinary research in the field of smoking prevention and cessation in adolescents and adults are presented.

In the first sub-chapter, the results of the first study that evaluated the prevalence of the consumption of electronic cigarettes and alternative tobacco and nicotine products among 9th grade students from Târgu Mureș, a region with a multi-ethnic population structure, are presented. The study showed that the most frequently tried alternative products were e-cigarettes, cigars and hookahs. The most important predictors of use of e-cigarettes and alternative tobacco products were previously trying conventional cigarettes and current smoking.

The second sub-chapter described the methodology and results of the interventional, controlled and randomized study that tested the effectiveness of the ASPIRA, a multimedia, interactive computer-assisted program for the prevention of smoking among teenagers in Romania. The study showed that non-smoking students who completed at least  $\frac{3}{4}$  of the content of the ASPIRĂ interactive multimedia curriculum were 35% less likely to start smoking after six months compared to non-smoking students in the control group. The study demonstrated that the ASPIRA program, translated and adapted from the US program of the same name, can contribute to the prevention of smoking initiation among adolescents of various ethnicities in Eastern Europe and that the degree of exposure to the program is crucial, with high exposure being significantly associated with reduced initiation of smoking.

The third subchapter presents the results of an investigation into the availability of specialized assistance in the network of Stop-Smoking centers in Romania. The study found that many centers have ceased operations, leading to uneven geographic coverage with possible consequences especially for low-income smokers with transportation difficulties. It was also noted that centers often cannot provide free pharmacological treatment. The study suggests that access to smoking cessation services in Romania is insufficient, justifying the investigation of causes and interventions to improve the situation.

The fourth subchapter summarizes the results and conclusions of two studies evaluating the potential of community pharmacies in smoking prevention. The first study used the questionnaire method administered to community pharmacy staff while the second one applied the mystery client method. These studies were the first to investigate the knowledge, attitudes, opinions of pharmacists in Romania regarding the implementation of minimal anti-smoking advice in community pharmacies. Overall, studies suggest a high level of awareness regarding the health consequences of smoking. The study highlighted an adequate level of knowledge of nicotine replacement therapies but also certain deficiencies regarding the usefulness of other pharmacological therapies such as bupropion and varenicline. It was also worrying that about a third of the participants believed that some dietary supplements or homeopathic preparations were effective remedies for quitting smoking. In general, the data obtained by the incognito customer method confirmed the observations made by the direct administration of the questionnaire to the pharmacy staff. The results of both investigations will be useful for the development of a training program in order to implement an intervention for smoking cessation in community pharmacies in Târgu Mureș.

The third chapter of the first part reviews the interdisciplinary contributions to the study of hereditary angioedema in Romania.

In the first subchapter, the results of the first national descriptive study on patients with hereditary angioedema in Romania are presented. This study showed a significant delay in the diagnosis of hereditary angioedema and an important number of misdiagnoses and inappropriate treatments. The most important positive aspect was the observation of a reduction in the diagnostic delay in children, which suggests an improvement in the awareness of the disease among doctors in recent years. A relative improvement in the management of hereditary angioedema in Romania could also be attributed to ensuring access to specific medication through a national program.

The second subchapter introduces the results of the study on the quality of life of patients with hereditary angioedema in Romania. This study stands out for three elements: it was the first study in Romania that used an internationally validated questionnaire specific to hereditary angioedema; it is the third such study worldwide, after the USA and Canada; was carried out during the COVID-19 pandemic. According to the HAE-QoL questionnaire, the quality of life was low. The overall HAE-QoL score and all dimensional scores except one showed negative correlations with the number of angioedema attacks and the disease severity score. The regression model showed that disease severity and patient's sex can predict almost half of the variation in overall HAE-QoL scores.

The third subchapter points out some contributions to the awareness of hereditary angioedema as a rare disease with potentially lethal impact. A series of four cases based on the analysis of data from the Romanian Hereditary Angioedema Registry is presented. In all these cases, death occurred as a result of laryngeal attacks not treated in time, highlighting an important vulnerability of the care system for patients with hereditary angioedema. The series of cases draws attention to the need for prompt and appropriate emergency intervention. A latest case report, published in The Lancet magazine, shows the difficulties faced by patients with hereditary angioedema in Romania. The case describes a woman diagnosed only 20 years after the appearance of the first symptoms suggestive of hereditary angioedema despite repeated attacks of edema in the limbs, genitals, face and even the respiratory tract. Laparoscopy performed in the course of an episode of abdominal colic during pregnancy revealed mucosal edema of the intestinal wall and a large amount of peritoneal fluid. Initially diagnosed as idiopathic ascites, the diagnosis was clarified after referring the patient to the Hereditary Angioedema Expertise Center. The case is remarkable in that it documented for the first time in the world the presence of intestinal edema and intraperitoneal serous fluid by laparoscopy video recording.

In the fourth chapter of the first part, other scientific, professional and academic achievements are presented, in short, the translation, adaptation and implementation of the ASPIRĂ application, an interactive, multimedia program for adolescent smoking prevention; designing and building ExpoData, an integrated application for assessing modifiable risk factors in chronic non-communicable diseases; and the design, construction and implementation of the Romanian Registry for Hereditary Angioedema. This chapter also presents the participation in international and national research projects, a synthetic inventory of publications, the recognition of scientific activity and the results of involvement as a coordinator in the activity of the scientific circle of medical information hygiene from George Emil Palade University of Medicine, Pharmacy, Science, and Technology of Targu Mures.

In the second part of the thesis, the evolution and development plan of the scientific, professional and academic career is presented.

In the first sub-chapter of this part, the most important objectives regarding teaching activities are listed and briefly described. These include the editing and publishing of teaching materials and the development of new courses: food hygiene and safety manual, hygiene and environmental health practical activities guide, medical information hygiene course and health education and health promotion manual.

In the second sub-chapter, the main areas of interest are defined in terms of research and the corresponding short- and medium-term projects: further studies of medical information hygiene-infodemiology, smoking prevention, health education and health promotion.