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**HEALTH SCIENCES DOCTORAL SCHOOL**

DEAN OF DOCTORAL SCHOOL

PROF. JÓZSEF BÓDIS, MD PhD DSc

RECTOR

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**INDIVIDUAL AND CONTEXTUAL DETERMINANTS OF THE  
HEALTH AND THE HEALTH INEQUITIES**

**DOCTORAL THESES**

**JÓZSEF VITRAI**

**PROGRAMVEZETŐ:** PROF. ILDIKÓ KRISZBACHER MD PhD

VICE DEAN

**TUTORS :**

PROF. ILDIKÓ KRISZBACHER MD PhD

VICE DEAN

ZSUZSANNA FÜZESI MD PhD

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## 1. INTRODUCTION

Why is it important and well-timed to raise the issue of improving the health of the Hungarian population and the inequity measured between different social groups? Because data show that the health of the people in Hungary is exceedingly poor and because international evidences show that inequity indicates inefficient use of social resources. In a time when scarcity of resources is a leading topic of discussion worldwide, this fact has particular significance. To improve the health status of Hungarians and to reduce health inequities, it is reasonable to introduce interventions proved in practice and recommended by international organizations after adapting them to Hungarian circumstances. The present thesis aims to advance the implementation of such measures by assessing and analyzing the factors that influence public health in Hungary, and the health inequities that were observed in different social groups. This knowledge can be used to adapt and effectively use international best practice in Hungary.

## 2. AIMS

- 1) To compare the health status of the Hungarian population with other groups of European countries and to demonstrate the necessity of an intervention.
- 2) To create a theoretical framework that is suitable to clarify the role of health determining factors, to analyze their complex mechanisms, and to study the social inequities in health, and the root of these inequities.

- 3) To develop a research methodology that is suitable to control for the social groups' different needs while analyzing the inequality in use of health care, and thus make it possible to analyze health inequities and their causes.
- 1) To present the best international practices and recommendations to reduce health inequities to make significant improvement in the health status and in the reduction of health inequities in Hungary.

## 3. THE STRUCTURE OF THE DISSERTATION

In the first section of the dissertation we examine the facts that characterize the health status of the Hungarian population to demonstrate the urgent need for an efficient intervention.

We review the theoretical model of health determinants in the second section. The next section contains the concept of health inequity, and then in the fourth section – after the clarification of the theoretical basis – we present our research on the inequities in the need for health care.

The fifth section summarizes the international and the Hungarian experiences in reducing health inequities. The closing section of the dissertation will include the summary of the conclusions of these interventions. You will find the bibliography in the seventh, while the author's own publications in the eighth section.

## **4. NEW RESULTS AND THEIR USABILITY**

### **4.1 As it has been demonstrated by the group of experts led by the candidate, the health of the Hungarian population does not reach the level pertaining to the country's socio-economic development.**

The facts presented in the first section of the dissertation prove that the health of the Hungarian population is not only behind compared to the developed Western European countries, but also compared to the countries with similar socio-economic development levels. Most health indicators show that our lag has grown in the past two decades. On the basis of these facts it can be stated that to decrease this lag in the health status of the population should be the most significant priority of the health policy today. Recognizing this task is particularly important and current, since - given the limited resources - significant improvement in the health of the population can only be performed through interventions selected according to this priority.

### **4.2 According to preceding researches and the results of the use of the health model set up by the candidate it is easy to demonstrate that the decline of health and the growing health inequities are mainly caused by social factors and their inequalities.**

Through the help of the health model presented in detail in the dissertation it can be stated, that the individual factors determining health – not taking into consideration hereditary traits – are mainly influenced by the individual's environment or by contextual factors. Among these contextual factors it is the socio-economic and political determinants that

have an influence on all the other factors acting as the “cause of all causes”. It should also be emphasized, that the individuals' self destructive behavior – already proven on multiple bases – is also influenced by their environment. Therefore, the decrease of risky health behavior can only be successful through adequate transformation of the socio-economic and political environment.

### **4.3 The research focusing on studying the inequities in the need for health care, and use of statistical methods fitted to the health model can prove that health determinants play a diverse role in mortality differences of various regions of Hungary or social groups.**

The research presented in the dissertation has proven that the multi-level statistical method fitted to the health model is able to analyze the complex systems of health determinants, thus making it possible to identify the role of certain clusters of determinants.

During the analysis, even after controlling for difference measured in individual and contextual factors the inequality between small areas with the biggest and the smallest mortality rate remained around 150%. This proves that to find out the reasons behind the excess mortality of a region, further determinants need to be involved in the analysis.

At the same time – after steps of controlling – mortality inequities between small area clusters formed on the basis of the level of deprivation, the state of development, and the proportion of Roma population seized to exist. It can be stated that differences in the examined determinants caused the disparity in mortality rate of small area clusters formed by their socio-economic characteristics.

Based on the results, even after controlling for all determinants examined the mortality in educationally and economically underprivileged social

groups stayed elevated. This also suggests that to uncover the background of and to reduce the social inequities in health further socio-economic factors are necessary to use. In the case of age and sex groups the remaining mortality inequities can easily be explain by biological specificity.

#### **4.4 The study has proven that the determinants of geographical inequalities and inequities play different roles in the mortality of circulatory system diseases and cancer mortality.**

For mortality of circulatory system diseases the geographical and social groups based inequalities and inequities were very close to the overall mortality. For cancer mortality however, inequalities and inequities were quite distinctive both in comparison to overall and to circulatory system diseases. One of the most significant differences was that in cancer mortality, the inequalities and inequities were much smaller in relation to educational level. The other major difference was that the control for difference in the composition of population has raised the inequality from 150% to 200%; meanwhile control for difference in contextual determinants has again reduced the inequities in mortality rates. This finding has verified the deterministic role of contextual determinants examined in cancer mortality.

Based on the results of this research it can be recommended that to uncover in-depth the inequities in Hungarian health care, further targeted research is needed, especially to better understand problems specific to underprivileged social groups and malignant neoplasms.

#### **4.5 Our results show that the individual and contextual health determinants play different roles in geographical and social inequalities in functionality reduction.**

Based on raw functionality reduction data, the inequalities observed at the level of counties have been significantly reduced after controlling for the differences in the composition of their population. This leads to the conclusion that the composition of the counties' population had a decisive impact on inequities observed in the risk of functionality reduction.

Inequalities in functionality reduction between small area clusters formed on the basis of the level of deprivation, the state of development, and the proportion of Roma population disappeared completely after controlling for the differences in the composition of small area clusters' population. It is probable that this result was caused by the averaging effect of low geographical resolution data available and the clustering of the small areas.

Analyzing the different social groups, it can be stated that the inequities in functionality reduction between age groups was explained by the gender composition of the groups. The influence of age and gender was definitive in all other social groups, as supported by the observation that controlling for these individual determinants significantly reduced inequities in functionality reduction. The role of contextual determinants in the inequities between social groups was insignificant, since controlling for these determinants did not reduce the inequities any further. Further research is needed to identify the causes of the inequities that remained after controlling for all determinants examined, especially for grouping by employment, education, and financial status.

**4.6 The results of our research have proved that a statistical method fitted to the health model is appropriate to analyze the complex system of the individual and contextual health determinants. Based on our experiences we have suggested the necessary development of the data sources and the analytical methods to better understand the reasons behind the exceedingly poor health status and health inequities in Hungary.**

The study results confirmed our hypothesis which states that disentangling the complex system of determinants with the help of multi-level statistical approach can help to understand the particular reasons behind the health inequities and answer such questions of health policy as “Where?”, “What?”, and “How?”.

Results also showed that selection of both individual and contextual data used to analyze health inequities should be extended. This extension would improve the fit of the statistical models and therefore the accuracy of the estimations. The data aggregation at small area level hinders the in-depth analysis of contextual effects since one small area may exist of very different settlements. Regulation of data accessibility should be revised to facilitate researches on health inequities.

**4.7 Adapting international experiences in improving the health of the population and reducing the health inequities collected and presented by the candidate – taking into account information on health determinants gathered in Hungary – would be an appropriate starting point to plan interventions for Hungarian policy makers. Improving the health of the population and reducing the health inequity should be placed on high policy agenda in Hungary similarly to other countries.**

Today, policy makers have the necessary tool box to remedy social problems identified in our research. International experiences presented in the thesis confirm that in order to achieve success, interventions are needed not only in the health sector but in other sectors as well. It is unquestionable that the initiation of these interventions is the responsibility of the health system because principally it is health policy makers who have the necessary knowledge for improving the health status of the population.

To reveal the causes of the poor health status of the Hungarian population and the root of the health inequities special researches are needed targeting the primary health problems of the deprived social groups and patients with maligns neoplasm. For this, it is indispensable to ease the regulation regarding the access to individual data. Additionally, a sound basis for health monitoring and cooperation between representatives of the science and the health policy should be developed to support evidence informed decision making in Hungary.

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## 6. CANDIDATE'S PUBLICATIONS

The number of scientific publications is 120 (30 in English or German), 11 books or book chapters (2 in English), 40 presentations. The summarized impact factor is 31.4 and the number of citations by others is 423.

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