

Tuberculosis Mortality in Transylvania

Some Data and an Analysis

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This paper provides an examination of tuberculosis mortality in Transylvania during the 19th and early 20th centuries, shedding light on the significant impact this disease had on the population.

DURING THE 19th and early 20th centuries, tuberculosis was a leading cause of mortality in Transylvania, accounting for 10%–15% of all deaths.¹ At the beginning of the 20th century, it claimed more lives than any other infectious disease.² Despite its significant impact, comprehensive and consistent data on this phenomenon remain scarce, and large-scale, in-depth studies are lacking. Existing research has only partially addressed tuberculosis mortality in Transylvania, often focusing on limited areas or specific time periods.

One such study is an article by Elena Crinela Holom and Nicoleta Hegedűs, which examines tuberculosis within the context of historical mortality in Transylvania between 1850 and 1920. The article emphasizes that pulmonary tuberculosis was among the most common causes of death during this period, appearing in records under 219 different terms—a consequence of the region’s linguistic diversity. Often categorized as an unspecified respiratory disease, its high prevalence is evident from the numerous mentions in historical data. The analysis highlights

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the challenges in standardizing these records due to variations in terminology and the lack of medical precision from those documenting causes of death at the time.³ Another example is an article on mortality in Arad County during the late 19th and early 20th centuries, based on a demographic analysis examining factors such as age, gender, ethnicity, religion, occupation, and education level. Quantitative demographic data derived from sources like parish civil status registers and statistical records also allow for the investigation of tuberculosis as a cause of death in this county.⁴

The limited extent of the research on this topic is partly due to issues related to the existing sources. To study the causes of death in Transylvania, we have two categories of sources: civil registers—which include parish records and, since 1895, those maintained by state authorities—and official statistics.

However, parish registers present significant challenges. Maintained by each of the many denominations in Transylvania—such as Roman Catholic, Greek Catholic, Orthodox, Unitarian, Calvinist, and Mosaic—the quality of information they contain is highly inconsistent. Often, the causes of death were recorded not by physicians but by individuals with minimal training. This led to entries using various popular terms or merely listing symptoms like fever, cold, or diarrhea. Additionally, the norms of the time classified causes of death into “natural/common” (those caused by disease) versus “violent deaths” (accidents, homicide, suicide). As a result, many parish registers simply noted the cause of death as “natural” or “common” without further details, rendering them useless for any detailed analysis.

During this period, only about 50% of the causes of death were established by doctors; many were recorded by so-called death inspectors. Established under the Sanitary Law of 1876 in Transylvania, the death inspectors played a crucial role in certifying deaths, without which burials could not proceed. They served as intermediaries between the occurrence of death and its official registration, reporting mortality rates and epidemic outbreaks to the local authorities. With minimal formal medical training, the death inspectors relied on practical knowledge in identifying the signs of death, rather than on scientific methods. Handbooks authored by Transylvanian doctors served as primary guides for these inspectors. These manuals detailed their responsibilities, including identifying the signs of natural, violent, epidemic, and apparent death. Training required literacy, familiarity with the signs of death, and maintaining a “flawless moral character.” Often, the death inspectors were literate individuals from rural areas—farmers, teachers, or mayors—responsible for preparing reports and ensuring the application of correct procedures following a death.⁵

Another significant source on the causes of death are the official statistics compiled by the Budapest Statistical Office, although these also contain many

gaps. They only began recording tuberculosis as a cause of death in 1892, despite including other diseases in the previous two decades. Several explanations exist for the late inclusion of tuberculosis in official statistics. Though ravaging, the disease was perceived as a family or societal problem rather than an issue concerning the authorities.⁶ The contemporary press featured numerous articles aiming to educate the population on combating tuberculosis, proposing individual measures rather than calling for government action. Furthermore, the disease was often unreported. To protect patients and their loved ones from the emotional impact, doctors often colluded to keep the diagnosis hidden. The illness was widely considered a death sentence, and the truth was concealed whenever possible to avoid diminishing the patient's will to fight for their own recovery. This practice, documented from the late 19th century until World War I, hindered the adoption of effective prophylactic measures.⁷

After 1895, data recording became more accurate due to the obligation to declare deaths to the state authorities and the comprehensive census conducted in 1900. However, extracting complete data from official statistics is hindered by the inconsistent manner in which the entries were made in the records. For some years, deaths from tuberculosis are recorded only in absolute numbers; for others, rates or percentages are calculated. Sometimes, the data are broken down by region and county; at other times, they are presented globally at the level of the whole of Hungary (of which Transylvania was a part until 1918).⁸

In this article, I aim to reconstruct the data on tuberculosis mortality in Transylvania as they appear in official statistics from the end of the 19th century to the First World War, and to see how they can be correlated with the economic and social context of the time. For this purpose, I used the following sources:

- Statistical Yearbooks (*Magyar Statisztikai Évkönyv*), 1892–1918;
- Statistical Bulletins (*Magyar Statisztikai Közlemények: A Magyar Korona országainak*), 1900–1918;
- A special statistical analysis devoted to tuberculosis in Hungary during 1901–1915 (*A Magyar Szent Korona országainak 1901–1915. évi gümőkórhalálózása*, 1925). This analysis divides the period into three intervals—1901–1905, 1906–1910, and 1911–1915—with data representing the averages for each year included in these periods.

Although uneven and fragmentary, these data provide information on the number of deaths from tuberculosis—broken down in some years by county—and tuberculosis mortality rates in general, broken down by age, gender, denomination, county, and occupation (note that the rates for occupations are calculated for the whole of Hungary, Transylvania not being indicated separately). Deaths are recorded under the generic term “tuberculosis” or “pulmonary tuberculosis.” After 1900, other types of tuberculosis are also recorded, insofar as

they were established by a physician, but these data refer to Hungary as a whole, not to Transylvania separately.

According to contemporary data, Hungary was considered one of the European countries most severely affected by tuberculosis—a situation highlighted by the numbers presented in the table below:

TABLE 1. MORTALITY BY TUBERCULOSIS IN HUNGARY COMPARED WITH OTHER COUNTRIES

	Mortality by tuberculosis (‰)				
	Hungary	Transylvania	England	Germany	Spain
1901–1905	3.89	3.36	1.74	2.07	1.99
1906–1910	3.07	3.25	1.57	1.75	1.76
1911–1915	3.28	3.06	1.42	1.49	1.52

Although the data are partial and were collected differently across various periods, they consistently reveal a similar situation for Transylvania.⁹

TABLE 2. MORTALITY BY TUBERCULOSIS IN TRANSYLVANIA, 1892–1915

TB deaths in Transylvania (‰)	
1892	2.32
1893	2.45
1901–1905	3.36
1906–1910	3.25
1911–1915	3.06

Data collected at that time by statisticians indeed show that tuberculosis mortality in Hungary was significantly higher than in other European countries. Where available, we also included data from Transylvania, which closely mirrors the situation in Hungary as a whole. Moreover, mortality had been on an upward trend since it started being recorded in official statistics. This situation was blamed on the lack of state involvement; the government was very late in adopting measures to prevent and combat the disease, despite tuberculosis being responsible for as much as 10%–15% of all deaths.¹⁰ The public health system suffered from an insufficient number of doctors—who were paid unreasonably low salaries—and a small number of hospitals and sanatoria. Regarding tuberculosis, it was not until 1906 that the Minister of the Interior, Count Gyula Andrásy the Younger, announced his intention to initiate measures to fight it.¹¹

The very nature of the disease made it difficult to reduce the number of deaths. Treatment lasted for months and often required radical changes in life-

style and environment; the main approach was to strengthen the body through rest, fresh air, and nutritious food. The poor and marginalized population of Transylvania obviously could not afford such things. Hospitals were scarce, and few could afford to remain isolated and thus miss months of work or family obligations. Under these circumstances, county authorities discussed constructing dispensaries specifically dedicated to tuberculosis. The tasks of these dispensaries would have been complex: providing medical care by doctors and nurses, consulting with patients, establishing and monitoring treatment plans (or referring patients to sanatoria or private doctors if they could afford it), educating the public on prevention and the lifestyle necessary for recovery, monitoring patients and their family members, offering financial aid for better living conditions and better food, and installing hygienic spittoons in public places (since the practice of spitting on the ground was considered largely responsible for transmitting the disease), among other duties. The state supported such initiatives with 5,000 crowns; the remaining funds had to be sourced elsewhere.¹²

In 1911, a dispensary was established in Sibiu (Hermannstadt, Nagyszeben) and, according to a report from 1912, it consulted 173 patients—109 men, 44 women, and 20 children under 12 years of age—107 of whom were diagnosed with tuberculosis. Thirty-two patients received treatment under the dispensary's supervision and received financial aid for rent and food. Providing a glimpse into the reality of the time, the aid included: 1,964 portions of 500 grams of meat, 19.5 kg of bacon, 159 kg of rice, 14.25 kg of honey, 43.5 kg of pasta, 35 kg of corn flour, 861 pieces of butter, 1,560 eggs, and 845 loaves of bread. The dispensary also sanitized the homes of these patients and installed spittoons. The chief physician delivered lectures, wrote articles, and distributed pamphlets throughout the county on disease prevention.¹³

Despite the usefulness of such initiatives, they were far from sufficient in number. For instance, in Fogaras (Făgăraș) County, the possibility of establishing a similar dispensary was only being discussed at the end of 1912.

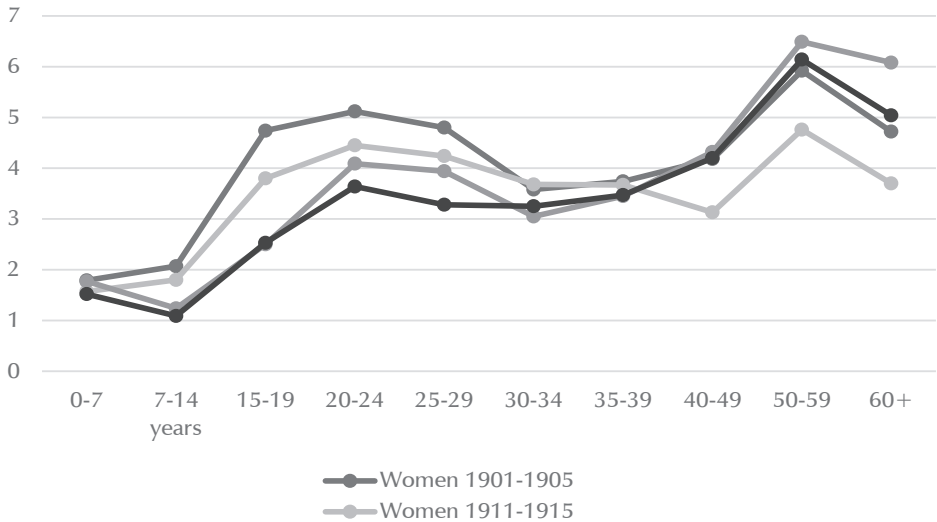
THE AVAILABLE data allow for the analysis of certain aspects of tuberculosis mortality. Regarding the distribution of deaths by gender, more women than men died of tuberculosis in Transylvania,¹⁴ as shown below:

TABLE 3. TUBERCULOSIS MORTALITY IN TRANSYLVANIAN BY GENDER, 1901–1915 (‰)

	Men	Women
1901–1905	3.2	3.7
1906–1910	3.1	3.5
1911–1915	3.6	3.3

Official statistics offer detailed data on mortality broken down by gender and age for only two periods: 1901–1905 and 1911–1915, as shown below:

CHART 1. TUBERCULOSIS MORTALITY BY GENDER, 1901–1915



The graph shows that adolescents, young adults, and the elderly are the age groups most vulnerable to tuberculosis. Mortality is highest among those aged 15–30, due to a combination of factors such as poor working conditions, prolonged contact with many people, poverty during the early stages of their careers, and limited access to healthcare. A contemporary account¹⁵ notes that mortality among young children aged 0–7 was primarily due to exposure to disease from their sick parents, compounded by poor living conditions—poor hygiene, lack of movement and fresh air—and inadequate nutrition; these children were raised “as candidates for death.” However, once they reached school age, children spent more time exercising and outdoors, which contributed to better health and reduced their chances of contracting the disease.

The rise in mortality after age 15 was ascribed to the many young people working in improper conditions—in factories, shops, or offices—confined all day in unhealthy spaces and too poor to eat properly. After a long period during which tuberculosis was considered hereditary, doctors realized it was a contagious disease that particularly affected weakened bodies. Surprisingly, mortality was not as high among school-aged children (7–14 years), even though some doctors at the time considered school conditions—crowded, small, and unventilated rooms—to be significant factors in the transmission of tuberculosis.¹⁶

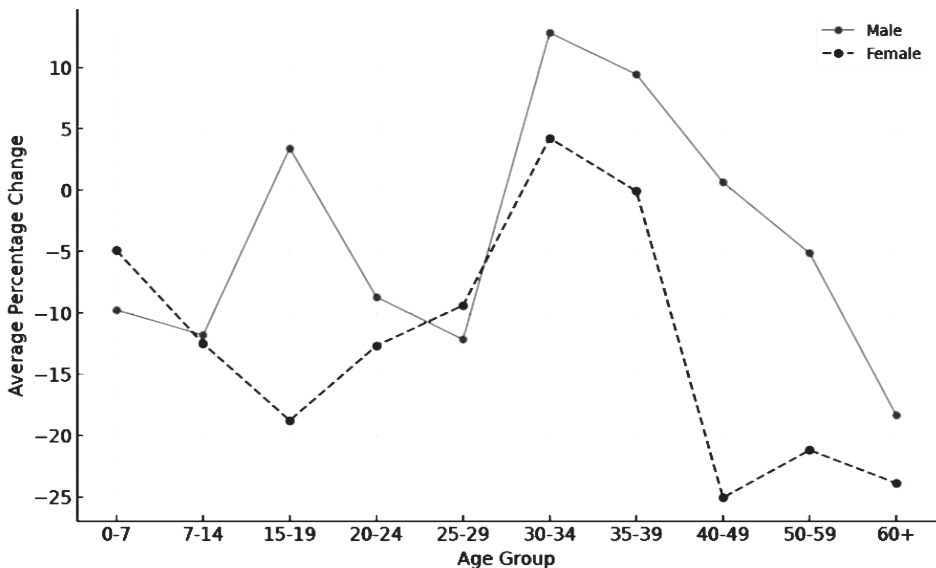
The graph also shows that the age group most affected is 50–59 years, which some authors consider to be a reactivation of a latent primary infection rather than a new infection;¹⁷ however, current data do not yet allow us to verify whether this explanation is valid for Transylvania. Notably, this age group is the only one where mortality is higher in males than in females, a situation that may be explained by a decrease in quality of life and care, possibly due to the loss of a life partner.

Overall, female mortality from tuberculosis was noticeably higher than that of men—a pattern also observed in other parts of Europe.¹⁸ The data do not provide explanations for this disparity; however, when combined with information from other sources, particularly the contemporary press, we can speculate on possible causes:

- women's immune systems may have been weakened by factors like child-birth or menstruation;
- women might have been more exposed to the illness because of their roles as caregivers for sick family members;
- cultural norms may not have encouraged women to prioritize their own health or seek medical attention when ill, especially among those living in poverty.

The graph below illustrates the changes in tuberculosis mortality for both genders during two periods: 1901–1905 and 1911–1915.

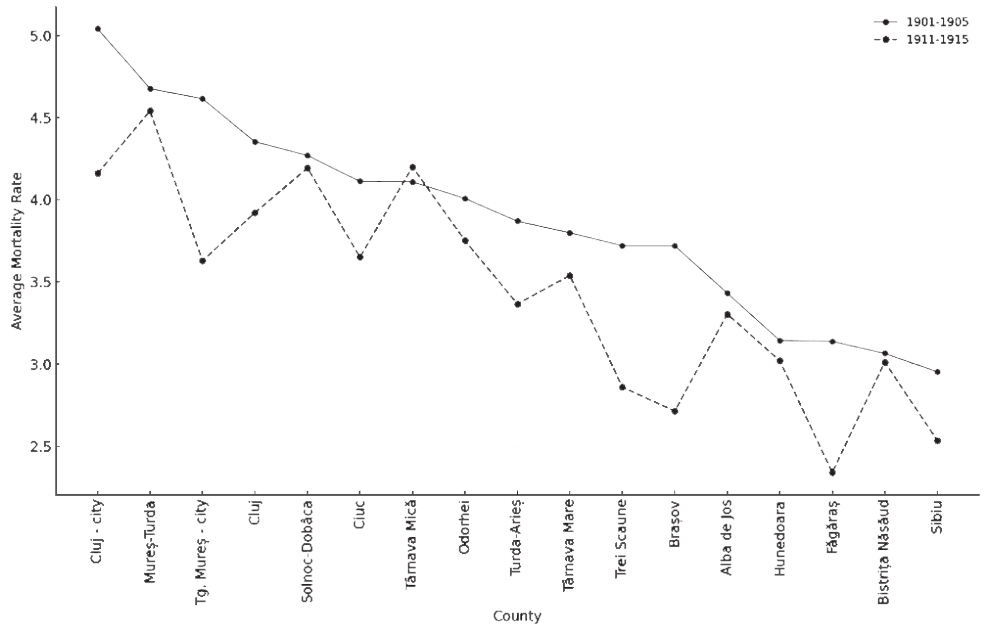
CHART 2. CHANGES IN TUBERCULOSIS MORTALITY BY GENDER AND AGE GROUP, 1901–1915



The graph shows the average percental change in tuberculosis mortality for males and females across all counties between the periods 1901–1905 and 1911–1915. Males (represented by the solid line) exhibited greater variability; some age groups, such as those aged 40–49, showed an increase in mortality, while others experienced decreases. Women (represented by the dashed line), on the other hand, experienced more consistent reductions in mortality, particularly among older age groups (60+). Overall, women saw greater improvements in survival rates, whereas men had mixed results—with certain age groups experiencing higher mortality rates.

Furthermore, the available data allow for an analysis of tuberculosis mortality at county level, as illustrated by the graph below:

CHART 3. TUBERCULOSIS MORTALITY BY COUNTY, 1901–1915



From 1901–1905 to 1911–1915, tuberculosis mortality generally declined, especially among individuals aged 40 and older, although some younger groups experienced increases. Changes in mortality varied significantly by gender and age, with some counties showing sharp declines for one gender and smaller changes or even increases for the other. The counties with the highest TB mortality were the city of Cluj (Klausenburg, Kolozsvár) in 1901–1905 and Maros-Torda (Mureș-Turda) County in 1911–1915.

An analysis of mortality trends by age group and gender indicates the following:

- Young children (0–7 years): in most counties, male mortality decreased, with reductions ranging from 1.7% in Beszterce-Naszód (Bistrița-Năsăud) to 45.9% in Brassó (Brașov, Kronstadt). However, Făgăraș stands out with increases in both male (+ 22.5%) and female (+ 49.2%) mortality. Changes in female mortality were more varied; some counties showed increases—for example, Alsó-Fehér (Alba de Jos) saw an increase of 12.9%—while others experienced declines, such as Brașov, with a 41.9% decrease.

- Adolescents (15–19 years): the general trend in this age group is a decrease in mortality, particularly among females. Brașov and Făgăraș showed significant improvements, with reductions in female mortality of 14.1% and 47.8%, respectively. Male mortality changes were more variable: some counties experienced increases—for instance, Alba de Jos saw a 26.3% increase—while others saw reductions, such as Brașov, with a 27.4% decrease.

- Middle-aged adults (40–49, 50–59 years): among these age groups, male mortality increased in some counties—Alba de Jos saw a 42.7% increase for ages 40–49—but experienced significant decreases in others, like Brașov, with a 21.9% reduction for the same age group. Female mortality generally decreased across most counties and age groups, with notable reductions in the 50–59 age group in counties like Brașov (– 39.0%) and Făgăraș (– 45.6%).

- Elderly (60+ years): mortality reductions in the elderly population are particularly significant. Counties like Făgăraș and Brașov showed strong decreases in male mortality by 54.5% and 21.3%, respectively. Female mortality in this group also saw sharp declines, such as in Brașov (– 37.6%) and Bistrița-Năsăud (– 26.1%).

The data reveal a complex picture of tuberculosis mortality, with marked improvements for some counties and age groups, while other regions experienced a worsening mortality. Overall, most counties show a general decline in tuberculosis deaths, particularly among older age groups and females. However, younger children and adolescents in some areas saw increasing mortality, notably females in Făgăraș and males in Alba de Jos.

Statistical records also provide some data on tuberculosis mortality by marital status:

TABLE 4. TUBERCULOSIS MORTALITY BY MARITAL STATUS, 1911–1915 (‰)

	Men				Women			
	Unmarried	Married	Widowed	Divorced	Unmarried	Married	Widowed	Divorced
1911–1915	2.31	3.64	6.51	7.85	2.69	3.78	4.04	4.58

Notably, most deaths occurred among unmarried men, which emphasizes the role of women as caretakers. It should be noted that the statistics include children among the unmarried.

Mortality rates by occupation are unavailable specifically for Transylvania; they are only provided for Hungary as a whole. However, existing sources indicate that the categories most affected by tuberculosis were:

- low-income individuals: smallholders, day laborers, and servants;
- workers in industries with poor air quality: this includes miners, leather workers, textile workers, stonemasons, millers, and others who were exposed to dust on a daily basis;
- factory workers: especially those employed in small, crowded factories.

Additionally, the urban population was more affected than the rural population due to higher population densities in cities and poor public hygiene. The spread of the disease was also exacerbated by certain habits of the time, such as spitting on the ground—a practice condemned by both doctors and the educated elite.¹⁹

THIS PAPER provides an examination of tuberculosis mortality in Transylvania during the 19th and early 20th centuries, shedding light on the significant impact this disease had on the population. By utilizing parish records, civil registers, and official statistics, it reconstructs mortality trends, demonstrating the high prevalence of tuberculosis, which accounted for 10–15% of deaths during the period. The findings indicate that tuberculosis disproportionately affected certain demographics, such as the urban poor, women, and individuals in high-risk occupations. Although public health initiatives began to emerge after 1906, their reach was limited, and the disease continued to claim lives, especially among the most vulnerable populations. Despite these insights, it is important to recognize that this research offers only a partial overview of tuberculosis in Transylvania. The data used, while informative, is fragmentary and inconsistent due to the limitations of historical records, the variations in medical terminology, and the quality of the entries made by non-medical personnel. Furthermore, official statistics from the period often lacked a comprehensive coverage, particularly before 1900, and much of the data reflects Hungary as a whole rather than focusing specifically on Transylvania. This makes it difficult to draw definitive conclusions about certain aspects of the impact of the disease in the region. More research is needed to address these gaps. Future studies should aim to collect more granular data on tuberculosis mortality in Transylvania, particularly by occupation, social class, and geographic region. Additionally, exploring the effects of the public health measures implemented after 1915 and

during subsequent decades could offer valuable insights into how tuberculosis was eventually brought under control. While this research provides useful data for understanding tuberculosis in Transylvania, much remains to be done in order to fully grasp the impact of the disease and the historical context in which it manifested itself.



Notes

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Abstract

Tuberculosis Mortality in Transylvania: Some Data and an Analysis

Tuberculosis was one of the most significant causes of mortality in Transylvania during the 19th and early 20th centuries, accounting for 10–15% of all deaths. This study examines the historical context, demographic factors, and mortality trends of tuberculosis in the region, from 1850 to 1920. Relying on a variety of sources, including parish records, civil registers, and official statistics, the research highlights the challenges posed by inconsistent data, linguistic diversity, and the medical practices of the time. The study provides a comprehensive overview of tuberculosis mortality patterns in Transylvania and explores their correlation with economic and social factors. Additionally, it evaluates the public health measures implemented, particularly after 1906, when government attention to tuberculosis increased. While some improvement in survival rates was observed, particularly among females, mortality remained high among the working poor and rural populations, emphasizing the limitations of medical intervention in combating this disease.

Keywords

tuberculosis, Transylvania, mortality trends, public health, 19th century, historical epidemiology, infectious disease