

Regional and European Perspectives on Infant and Child Mortality in Albania: The Impact of Demographic Factors After 1990

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Abstract

This article provides an analysis of infant and child mortality trends in Albania, emphasizing demographic, economic, and social influences on health outcomes post-1990. Albania has experienced substantial improvements in health indicators, particularly following the country's transition from a centralized health system under communism to a more integrated, European-standard model. Despite notable advancements, significant challenges persist, including data underreporting, changing in the methodology of data analysis for infant and child mortality rates, as well as regional health disparities. Therefore, this article tries to examine these mortality trends within the broader regional and European contexts, drawing on historical data and

demographic shifts to shed light on Albania's progress and remaining health challenges.

Key demographic shifts in Albania since the early 1990s, including large-scale emigration, declining birth rates, and population aging, have introduced new pressures on the health system and influenced mortality rates among infants and children. Albania's infant mortality rate, though improving, remains relatively high compared to neighboring Balkan countries and significantly above the EU average. Factors such as maternal age, birth spacing, access to healthcare, and socio-economic conditions are examined as critical elements affecting these mortality trends. The article findings highlight the "Albanian paradox"—a situation where Albania has

achieved relatively favorable health outcomes despite economic challenges, in part due to historical policies focused on maternal and child health. Regional and EU disparities reveal ongoing inequities in healthcare access between urban and rural areas, with rural populations facing higher mortality rates due to limited healthcare infrastructure and fewer specialized services.

The study concludes with recommendations for policy actions aimed at reducing infant and child mortality rates. Emphasis is placed on increasing healthcare investments, particularly in rural areas, expanding education programs focused on family planning and child health, and improving data reporting mechanisms to ensure reliable mortality metrics. Strengthening healthcare access and addressing socio-economic disparities are critical to aligning Albania's health indicators with European standards, reducing inequalities, and improving health outcomes for future generations.

Keywords: Albania, mortality, infant, children, demography, impact, factor.

INTRODUCTION

Infant and child mortality rates are critical indicators of societal well-being and the effectiveness of health systems. In Albania, these indicators have undergone substantial changes over the past decades, particularly following the collapse of the communist regime in the early 1990s. The demographic, social, and economic transformations since this period have significantly influenced the health outcomes of infants and children, marking an era of profound transition from a centralized healthcare system to one increasingly integrated with European standards. However, one of the persistent challenges has been the underreporting of infant and child mortality data, creating a complex paradox in accurately assessing the health status of these vulnerable age groups.

Understanding the levels and underlying factors of infant and child mortality is essential for planning and evaluating health programs aimed at improving child survival and well-being. Various factors—genetic (e.g., birth weight, congenital conditions), demographic (e.g., maternal age, birth order), and socioeconomic (e.g., parental education, community resources, nutrition, healthcare access)—play a role in influencing these mortality rates. Associations between demographic factors and mortality risk often stem from issues such as prematurity, low birth weights, and complications linked to specific birth intervals and maternal age. Short birth spacing, often described in terms of "maternal depletion syndrome," is frequently associated

with adverse outcomes for both infants and young children (1).

Research consistently shows that mortality is higher among firstborns and children of teenage mothers. Although risks are moderated for later-born children and those born to older mothers, the effects of closely spaced births persist, regardless of the survival status of a prior sibling. Mortality rates rise even further when a prior sibling has passed away, likely due to increased familial risk factors. Despite these well-documented patterns across countries, there are some noteworthy regional variations that invite further investigation.

The trends in infant and child mortality in Albania reflect significant shifts from the communist period to the present day. During the communist era, mortality rates were notably high due to challenging socio-economic conditions and limited healthcare resources. Nevertheless, state-led efforts to improve healthcare, particularly in primary care and vaccination programs, contributed to a gradual decline in mortality during the regime's later years (2). Since the 1990s, demographic changes such as declining birth rates have allowed for a concentrated allocation of healthcare resources towards newborn and child health. New challenges have emerged due to high emigration and rapid socio-economic changes, leading to disparities in health outcomes across regions. Neonatal mortality remains particularly high, comprising over 75% of total infant mortality in 2018, highlighting the ongoing need for

improved antenatal and postnatal care, as well as strengthened healthcare infrastructure (3).

This study aims to examine the historical trends in infant and child mortality in Albania, focusing on the impact of demographic shifts post-1990, and to place these trends in a comparative context with other countries in the region and Europe.

2. Analysis of key demographic changes post-1990 in Albania

In this section, we discuss three main phenomena that characterize the demographic changes in Albania after the 1990s: the waves of internal and external immigration, the improvement of the mortality rate and the decrease of the fertility rates.

In the mid-1970s industrialization dictated a new configuration of the female labor participation rate as women constituted 47% of the total labor force in 1989 (4). Following WW-II life expectancy was only 50 years for both sexes and child mortality rates were quite elevated. With the advent of improved health and survival chances provided for by the communist government life expectancy climbed to 70.7 years and child mortality rates plunged to 45.4 deaths per 1,000 live births by late 1990s, and in 2000 it climbed to 74.4 years (5). Albania's demographic transformation since the 1990s has been influenced by mass immigration, a decrease in birth rates, and aging population, posing new health challenges. The fall of communism led to 700,000 emigrants to Greece and Italy (6), resulting in a decrease in young people and an

increase in the elderly, affecting domestic health indicators.

Albania has had one of the highest fertility rates in Europe; in 2002, the total fertility rate was 2.2 children per woman, the highest in Europe. However, the country has experienced drastic changes in this regard over the past 50 years. Declining fertility is another important factor. Albania has experienced a significant decrease in the total fertility rate, from 3 children per woman in 1990 to 1.38 in 2018 (7). This decrease is the result of socio-economic changes, improved women's education and increased use of family planning methods. These changes have affected the structure of the population, leading to an increase in the average age of the population and a decrease in the number of births.

Population aging due to declining birth rates and immigration has increased the number of elderly individuals, requiring more healthcare and facing special health challenges. This demographic shift has impacted chronic disease burden and necessitated health system adaptation.

The population of Albania decreased by 1.1% in 2023 compared to 2022, with 690 more births than deaths. Immigrants increased by 10.5% in 2022, with 13,963 people, a 51.9% increase from 2021. The youth dependency ratio fell from 24.0% to 23.8%, while the elderly dependency ratio rose from 23.1% to 24.4%. The sex ratio decreased from 98.6 to 98.0 males per 100 females; the sex ratio at birth also fell slightly, to 107.4. The number of births dropped by 9.3

percent, and deaths by 21.3 percent, compared with the preceding year. (6,7).

The transition countries, like Albania, underwent rapid socio-economic transformation with complementary demographic responses in the high living standard counties; high international remittances and fertility decline also occurred. Women in the sending families start childbearing earlier but have smaller families. Migration reduced population in the first decade but has kept the demographic dependency unchanged in the same period. Many females sustained fertility transition during the 1990s (8).

2.1. The Albanian paradox: underreporting issues and data reliability

Constructing fertility histories and trends for the period before World War II is difficult. Available data on primary birth rates date from the early 1930s, when the vital statistics registration system was established in Albania. However, the quality of these data is questionable for several reasons.

A major factor is the existence of a birth registration tax in the period before World War II, which constituted a significant burden on the budget of a typical Albanian family. Another factor was the high level of illiteracy in the country, which negatively affected the registration of various events. As a result, there was either a lack of data for entire regions or inaccurate reporting of vital events for that period. For this reason, the analysis here focuses on the period after 1950. However, another important issue must be considered: for the

period 1950-1990 there are no data on individuals, and only in 2002 were the first individual data collected on building fertility histories and analyzing the fertility behavior of Albanians (9).

A unique aspect of Albania is the so-called "Albanian paradox", where the country has achieved relatively good health outcomes despite its low level of economic development. A major challenge has been the under-recording of infant and female mortality, which has affected the reliability of the data. One of the main issues in the analysis of infant and child mortality in Albania is the problem of underreporting of data. This phenomenon has been present since the communist period and continues today, creating a significant discrepancy between official data and estimates by international institutions such as UNICEF and WHO. For example, while official data show a low infant mortality rate, international reports suggest that the true figures may be significantly higher (10).

According to a recent report, infant mortality in Albania for 2013 ranged from 7.2 to 13 deaths per 1,000 live births, depending on the data source. This underreporting may be related to under-registration of deaths and errors in death certificates. These issues highlight the need for an improvement of the vital statistics registration and monitoring system in Albania, to ensure that health data are accurate and reliable, which are essential for the planning and implementation of effective health policies.

3. Infant and Child Mortality Trends in Albania

During the years of the communist regime, Albania achieved significant results in reducing infant and child mortality, mainly through the creation of a centralized and state-funded public health system. Table 1, based on data from the "Statistical Yearbook of the R.P.S.H" (1965, 1988) and the Census Bureau of Tirana, shows infant mortality rates and gender differences for the period 1950-1989. In this period, infant and child mortality was high due to difficult socio-economic conditions and the lack of adequate health resources.

In 1895, the Albanian child mortality rate was as high as 375 deaths per one thousand children under five years of age. Although it was quite a figure, it was considerably lower than the pre-World War II poster series by the British Medical

Association on the spread of cross infection. It was only after the Great War when there was improvement over the War Childhood series. As industrialization and urbanization began to influence the communism, there came strict reforms by the communist party which drastically changed the high Child Mortality rate of the country from 50% to somewhere around 10% between the years of 1950 and 1955. The rate of child mortality then fluctuated around the range from the late 1980s to the present day (11).

According to Gjonça (12), by 1950, infant mortality was high, with about 148 deaths per 1,000 live births, a rate that exceeded those of neighboring countries such as Greece, Yugoslavia and Bulgaria. These figures were among the highest in the region for that period. However, through improvements in vaccination, primary care services, and better access to health

Table 1. Infant mortality rates, gender-specific infant mortality rates and neonatal and post neonatal mortality rates by year, 1950-1989 [Source: Statistical Yearbook of R.P.S.H 1965, Statistical Yearbook of R.P.S. in Albania 1988, Census Bureau of Tirana (13,14)]

Years	All	Males	Females	Neonatal	Post-neonatal
1950	121.2	-	-	17.3	103.9
1960	83.0	78.1	87.9	14.4	68.6
1970	97.9	-	-	-	-
1975	70.4	71.4	69.3	-	-
1980	50.3	53.2	47.1	-	-
1981	50.6	-	-	13.0	37.6
1983	41.2	-	-	-	-
1985	30.1	-	-	-	-
1987	28.2	29.8	26.4	8.2	20.0
1988	25.2	26.9	23.3	6.9	18.3
1989	30.8	-	-	-	-

Table 2. Leading causes of infant death, 1988 [Source: Census Bureau of Tirana (14)]

Causes of death	Percent
Infectious and parasitic diseases	6.2
Respiratory diseases	45.5
Diseases of the digestive organs	8.2
Congenital anomalies and birth-period anomalies	18.3
Other	9.8
Unclassified	12.0

care, the communist regime managed to gradually reduce mortality. By the late 1980s, infant mortality rates had fallen to about 45.4 deaths per 1,000 live births.

After the end of the communist regime and the fall of the centralized position of health, Albania entered a period of deep political and economic transformation, which had great consequences in public health. Data from the UN Inter-agency Group for Child Mortality Estimation (12) show a steady decrease in infant and under-five mortality in Albania over the last decades, but also reflect the challenges that have arisen from the democratic transition and phenomena related to immigration, mass and urbanization.

Under-five mortality rates have fallen significantly, from 40.6 per 1,000 live births in 1990 to about 8.4 in 2022. Improvements in health infrastructure, investment in women's education, and improved living standards have had an impact significantly in these indicators.

Figure 1 shows the trends in infant mortality in Albania since 1990, revealing the gradual improvements in infant health. The rate has fallen from 35.2 per 1,000 live births in 1990 to 8.4 per 1,000 live births in 2022. This is due to improvements in health care and socio-economic conditions. Improvements in health services, international aid, and health policy reforms were the main contributors to the fall in infant mortality. The rate has declined from 24 per 1,000 live births in 2000 to 11.9 in 2010, backed by health reforms such as vaccination programs, better pre- and post-natal care, and maternal and child health care. However, it is still higher than most Western European countries, where the rates are generally less than 5 per 1,000 live births.

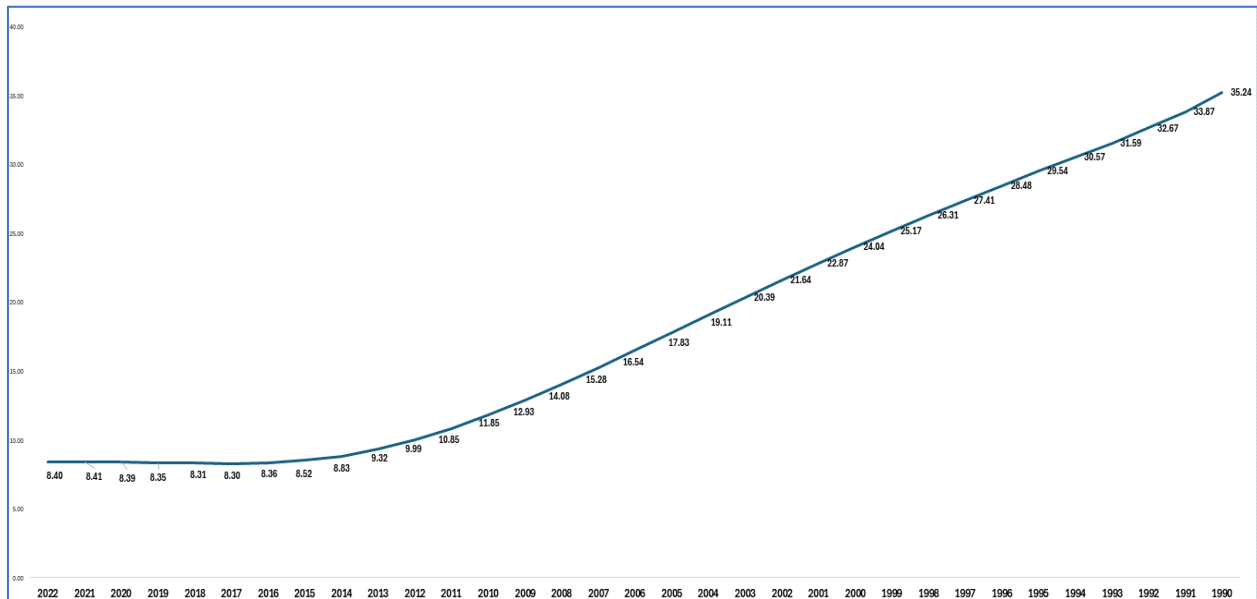


Figure 1. Infant (0-12 months) mortality rate estimate after 1990. [Source: WHO, UN Inter-agency Group for Child Mortality Estimation (15)]

Mortality rates from 40.7 per 1,000 live births declined to 27.1 per 1,000 live births by 2000, considering the enhanced access to basic health care and international organizational assistance through economic and social crises.

From 2000 to 2010, the trend was downwards, with increases in the quality of healthcare and immunization programs. The rate is stabilized from 2010 to 2022 with an emphasis on improvement in primary health care through the treatment of childhood diseases and neonatal complications.

The statistical reliability of the estimates is indicated by higher variability in the earlier years, with the variability narrower in 2022. The investments in health infrastructure and, particularly, primary care centers have improved the access to basic services, and the vaccination programs have reduced the morbidity from

infectious diseases. Prenatal and postnatal care programs have reduced mortality, especially in urban areas.

Further progress will have to be given to the neonatal mortality and access to health care of the rural population. The country has made efforts towards meeting the international targets in terms of children's health; however, for such indicators to be further improved, additional policies related to investments in health will have to be initiated. The INSTAT data shows a downward trend in infant and child mortality rates in Albania from 2018 to 2022. In 2018, the infant mortality rate was 8.9 per 1,000 live births, which increased to 10.3 in 2020. However, it stabilized to 10.0 in 2020, and by 2022, it reached its lowest rate of 6.5 per 1,000 live births. The child mortality rate also experienced minor fluctuations, dropping from 9.2 in 2021 to 7.6 in 2022.

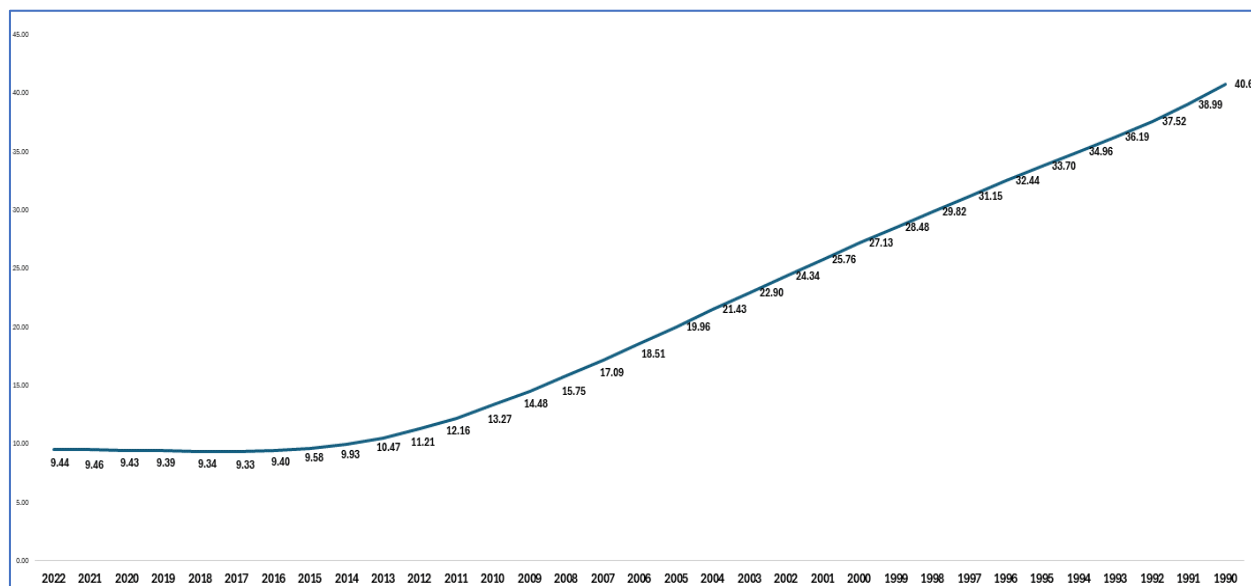


Figure 2. Under-five (>5) mortality rate estimate after 1990. [Source: WHO, UN Inter-agency Group for Child Mortality Estimation (16)]

When comparing this national data to estimates from international bodies such as WHO and the UN Inter-agency Group for Child Mortality Estimation, discrepancies emerge. International estimates often present higher rates, likely due to differing methodologies and potential underreporting within national data. For instance, WHO recent estimates indicate a higher under-five mortality rate than those presented by INSTAT, suggesting that Albania may still face unreported health challenges, particularly in rural or underserved regions where access to healthcare may be limited (18). The disparity also highlights the "Albanian paradox," where reported health outcomes appear better than expected given the country's economic status. This paradox has been partly attributed to underreporting issues, especially during the communist era, and may still persist to some extent in contemporary reporting practices.

Table 3. Infant and child mortality rate according to national data from 2018-2022 [Source: INSTAT, 2024 (17)]

Years	Infant mortality rate	Child mortality rate
2018	8.9	10.1
2019	10.3	11.0
2020	10.0	10.9
2021	8.4	9.2
2022	6.5	7.6

Based on the data from our work in data the leading causes of death in children under five in Albania have evolved over the 1980 to 2021 period. Neonatal preterm birth remained a persistent and significant contributor to child mortality throughout this time. Other neonatal disorders also played a major role, with fluctuating estimated annual deaths. Congenital birth defects were another prominent cause,

maintaining a relatively steady impact (19). The data also captures the emergence of COVID-19 as a factor impacting child mortality in the later years (20).

3.1. Key factors influencing mortality trends

Albania's health system has markedly reduced infant and under-five mortality from the Communist period due to primary care measures, vaccination programs, and basic healthcare. Moreover, during post-communism, living standards and mother education have reduced the mortality rates. However, regional disparities and a lack of quality health services in rural areas have persisted. Women in rural areas have lower levels of prenatal and postnatal care, with 73% attending regular medical check-ups compared to 82% in urban areas (21). Infant mortality is one of the major issues facing Albania, with the largest proportion occurring during the neonatal period. Poverty, low education levels, and poor access to pediatric care are some of the contributing factors to the high infant mortality rate. In 2021, infant mortality decreased slightly to 8.4 per 1,000 live births, although challenges remain regarding the improvement of rural indicators and reduction of persisting inequalities in access to healthcare (22).

4. Regional and European Comparisons

Infant mortality rates in Albania compared to Eastern European countries until 1988. estimated the highest rates in this region, leaving behind Romania, Yugoslavia and the USSR. Since the

communist period infant mortality rates have been at quite high rates (23).

Meanwhile, the data provides a clear picture of life expectancy and infant mortality trends in Albania and other countries of the Western Balkan's region, as well as the comparison with the European Union average. These indicators are important elements to understand the general state of health care and the quality of life in the region.

Life expectancy at birth in Balkan countries and the EU increased during these years, hitting 81.3 years in 2019; in 2020 it came down to 80.4 years because of COVID-19, which also represents a case on a global scale. For Albania, in the same year, the expectations for life at birth were 79.1 years. Its indicator was lower compared with the average within the community. The drop to 77.4 years in 2020 reflects the impact of the pandemic on the health system and challenges the country faced. North Macedonia and Serbia have lower life expectancy indicators, possibly due to socio-economic and health challenges.

Infant mortality rates are an important indicator of health care quality. In the year 2012, Albania had a rate of 8.8 deaths per 1,000 live births, compared with the EU average of 3.8 deaths. It decreased to 6.5 per 1,000 live births in 2022, which was a big improvement (25). Increased awareness of perinatal care, improvement in health infrastructure, and new investments may be the reasons for such a decrease (26). Despite this increase, Albania is still above the EU

average. Serbia has significantly improved its standing, and the infant mortality rate in that country is only 4.0 per 1,000 live births.

While Albania has improved infant mortality rates and life expectancy, the country still faces challenges compared to EU standards and some other countries in the region. The differences in these indicators for Albania compared to the EU and its neighbors point to the continued need for investment in health care services, improving access to quality health care, especially in rural areas, and focusing on health policies that ensure a better care for mothers and babies.

5. Health Policy Interventions

The socialist government of Albania gave much attention to the health status of its population, especially in infant and maternal mortality, during the communist era. Health reforms, such as improvements in primary care and specialized services, led to a significant decrease in infant mortality from 148 to 22 per 1,000 live births over 50 years. Education reform, such as the education of women, indirectly influenced fertility in the direction of their emancipation and increased opportunities for them to integrate into the labor market. Full employment and employment equity policies for women created an enabling environment for women to have more control over family-making decisions. The government also funded and built nurseries and kindergartens to support mothers (27,28).

Influencing the policies regarding the

emancipation of women and choice in family planning, this influenced fertility. Education and employment made women more financially independent and increased awareness of family planning and contraceptive methods. The visible outcome of the policies of the communist period was the decrease in birth rates and an improvement in social and health conditions for women. These policies have left a lasting mark on the demographic and social structure of the country even after the end of the communist system (29, 30).

6. Recommendations

The state of Albania needs a holistic approach to improve infant and child mortality indicators by focusing on education programs, health infrastructure, and data reporting. Investment in education programs targeting young people and women is necessary so that women can make informed choices regarding reproductive health care and family planning. This includes the strengthening of emergency transportation systems and the creation of health centers in rural areas. Programs should incentivize doctors to practice in such areas in order to serve local health needs. Standardization in data reporting and collection methods will further improve the reliability of health analyses. There shall be integration of a data system to obtain information and analyze infant and female mortality indicators at a national and regional level. Further research into the effects of immigration on

population structure and infant health will yield far more reliable data for policy design and long-term population health planning.

CONCLUSION

Albania has made large gains in improving infant and child mortality indicators since the 1990s, mainly due to betterment in health systems, maternal education, and living standards. However, there still exist challenges that the country needs to address, especially in the high rates of infant mortality found mostly in rural areas and communities with less access to health care. This is attributed to inequalities in economic development, health services, and demographic factors such as immigration and decreased birth rates. The post-1990 demographic changes—aging and fertility decline—have further altered the health status of the Albanian population. Regional disparities in access and quality of health services between urban and rural areas contribute to health disadvantages for younger age groups. Such disparities will also be handled in that the policies of health and social aspects target more access to and quality in care by the mothers and children and enhancement in infrastructures towards improved data reporting in health, consolidation of the indicators into the standard of Europeans for reduced inequalities in health and make them far from the region and European Union.

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