

## Distribution of premature births in Shkodra region during the period 2005-2015

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### Abstract

**Aim:** We aimed to assess the distribution of premature births for the period 2005-2015 in Shkodra region, which is the principal region in north Albania.

**Methods:** This was a cross-sectional study which included all births occurring at the Regional Hospital of Shkoder during the period 2005-2015. Information regarding the type of birth (premature vs. full-term births) was collected for all deliveries occurring at the Regional Hospital of Shkoder during the study period. Based on the overall number of births during the study period and the respective number of premature births it was calculated the proportion of premature births for each year under the study. Cox-Stuart test was used to assess the linear trend in the overall number of births, the number of premature births and the proportion of premature births in Shkodra region for the period 2005-2015.

**Results:** Overall, there was evidence of a significant decrease in the number of births and the number of premature births in Shkodra region during the period 2005-2015. Nevertheless, there was no evidence of a statistically significant linear trend in the proportion of premature births in Shkodra region for the period 2005-2015 (Cox-Stuart test for linear trend:  $P > 0.05$ ).

**Conclusion:** Our analysis provides evidence about the distribution of premature births in Shkodra region for a ten-year period during which the decline in fertility rates has not been associated with any changes in the proportion of premature births. Health professionals and policymakers in Albania should implement effective programs for prevention of premature births.

**Keywords:** distribution of births, linear trend, premature birth, Shkoder.

## Introduction

Premature birth, a global public health challenge, is considered one of the most important single causes of the global burden of diseases in the neonatal period (1,2). Many maternal demographic and socioeconomic characteristics and behavioral/life style factors have been convincingly documented as important predictors of premature births including older age (3), low socioeconomic status (4) and smoking (5,6).

According to the Institute of Statistics (INSTAT), during the past decades, the annual number of births has decreased considerably (from about 53 thousand in 2001 to about 34 thousand in 2014) (7). On the other hand, the annual number of deaths has remained stable at around 20 thousand (7). Overall, there is evidence of a positive natural population increase in Albania which, nevertheless, exhibits a decreasing trend in the past decade, most probably due to the decline in fertility rate (7).

Albania is a country which is characterized by a rapid transition from a rigid economy toward a market-oriented system. Since the early 1990s, the transition process in Albania was accompanied by a sharp increase in unemployment rates, notwithstanding the official figures which are known to underestimate the actual rate of unemployment (8). According to a recent Labor Force Survey (LFS), the unemployment rate in the Albanian population aged 15 years and above was 15.9% in 2013 (17.8% in men and 13.5% in women) (7). Unemployment leads to income differences, which are well-known factors to potentially cause health differences including differences in premature birth rates.

Yet, there are no scientific reports about the distribution of premature births in post-communist Albania, especially for the northern regions of the country. In this framework, the objective of this analysis was to assess the distribution of premature births in Shkodra region, which is the principal region in north Albania.

## Methods

This was a cross-sectional study which included all births occurring at the Regional Hospital of Shkoder during the period 2005-2015. For all deliveries occurring at the Regional Hospital of Shkoder during the study period information regarding the type of birth (premature vs. full-term births) was collected. Hence, for each year under study, the overall number of births and the number of premature births was recorded.

Based on the overall number of births during the study period (from 2005 to 2015) and the respective number of premature births it was calculated the proportion of premature births for year under the study.

Cox-Stuart test was used to assess the linear trend in the overall number of births, the number of premature births and the proportion of premature births in Shkodra region for the period 2005-2015. A p-value of  $\leq 0.05$  was considered as statistically significant in all cases.

Statistical package for Social Sciences (SPSS, version 17.0) was used for all the statistical analyses.

## Results

The distribution of the overall number of births and premature births in Shkodra region for the period 2005-2015 is presented in Table 1. On the whole, there was evidence of a significant decrease in the number of births during the study period. Hence, the overall number of births in Shkodra region was 2183 in the year 2005, but only 1595 ten years after (in the year 2015). This absolute decrease in the overall number of births (N=588) was statistically significant (Cox-Stuart test for linear trend:  $P < 0.01$ ). Similarly, in line with the decline in the overall number of births, there was also evidence of a decline in the number of premature births in Shkodra region for the period 2005-2015. Thus, the number of premature births in Shkodra region was 198 in the year 2005, whereas in the year 2015 it was 153. This

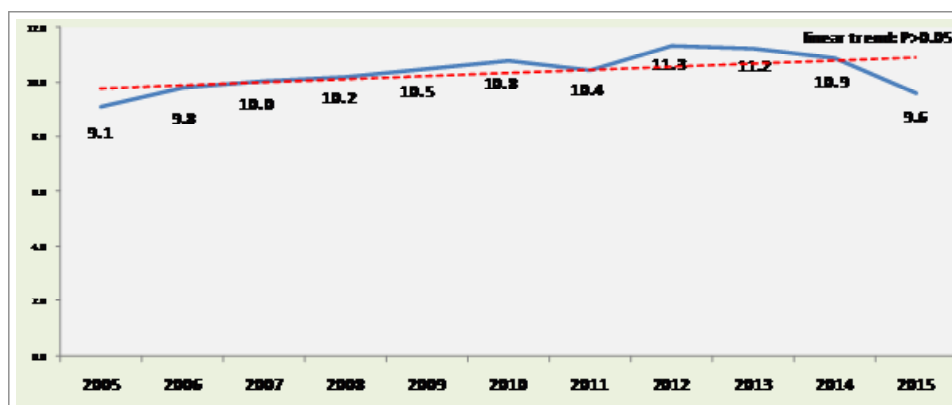
absolute decrease in the number of premature births (N=45) was statistically significant (Cox-Stuart test for linear trend:  $P < 0.01$ ) [Table 1].

**Table 1. Distribution of the overall number of births and premature births in Shkodra region for the period 2005-2015**

YEAR	Number of births	Number of premature births
2005	2183	198
2006	2098	205
2007	1959	196
2008	1837	187
2009	1862	195
2010	1866	201
2011	1833	191
2012	1863	211
2013	1803	202
2014	1748	190
2015	1595	153
<i>Total</i>	<i>20647</i>	<i>2129</i>

On the other hand, the proportion of premature births (that is the ratio between premature births and the overall number of births) did not exhibit a significant linear trend over time, as presented in Figure 1.

**Figure 1. Premature births (%) in Shkodra region for the period 2005-2015**



The proportion of premature births in the year 2005 was 9.1%, whereas ten years after (in the year 2015) it was 9.6%. The highest proportion of premature births in Shkodra region was noted in the years 2012 and 2013 (11.3% and 11.2%, respectively). Nevertheless, there was no evidence of a statistically significant linear trend in the proportion of premature births in Shkodra region

for the period 2005-2015 (Cox-Stuart test for linear trend:  $P > 0.05$ ) [Figure 1].

## Discussion

The main finding of this analysis includes the absence of a significant linear trend in the distribution of premature births in Shkodra region for the period 2005-2015. Hence, regardless of a

significant decline in the overall number of births and the number of premature births, there was no evidence of a statistically significant decrease in the share of premature births in Shkodra, the main region in north Albania.

In Albania, secular trends have accounted for a decrease of 13,000 child deaths from 1990 to 2010 compared with 134,000 child deaths in the overall Central European countries (9). Similarly, there has been a reduction of 13,000 child deaths due to fertility compared to 71,000 in the whole Central Europe. In turn, maternal education accounted for a decrease of 4,000 child deaths in Albania as opposed to 35,000 child deaths in the whole Central Europe (1).

For Albania it has been reported a general declining trend of the under-five child mortality in the past two decades (9,10). Yet, child mortality has declined to a greater degree than infant mortality (9). This continuous decline has been mainly attributed to improvements in children's environments brought about by health interventions, or general improvements in living standards (9). Based on a recent analysis (1), key factors that have contributed in the decrease of child deaths during 1990-2013 include fertility rates, maternal education, HIV/AIDS, income, and secular trends. In Central Europe and

Albania, secular trends that include new drugs, vaccines, diagnostic procedures and public health campaigns, count for the biggest shift in child mortality rates (9). The second most important influencing factor is fertility, followed by mother education and income (1).

The current analysis may have some limitations primarily related to the possibility of information bias (based on the data collected through the medical charts). However, our analysis included all women who delivered at the Regional Hospital of Shkodra (all full-term births and all premature births) during the period 2005-2015. Furthermore, the quality of information is assumed to have been similar for all years under study. Nonetheless, we cannot entirely exclude the possibility of information bias, at least to some extent.

In conclusion, regardless of these potential limitations, our analysis provides evidence about the distribution of premature births in Shkodra region for a ten-year period during which the decline in fertility rates has not been associated with any significant changes in the proportion of premature births. Health professionals and policymakers in Albania should implement effective programs for prevention of premature births.

**Conflicts of interest:** None declared.

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