Brief Report

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The Prevalence of Neonatal and Infancy Mortality in the Rural Areas of Babol, 2010-14

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ABSTRACT

BACKGROUND AND OBJECTIVE: The first year of life in the provision of health infrastructure and improvment of the life quality is very important. Because the mortality in the neonatal period and infancy is unclear in Babol, this study aimed to determine the prevalence of neonatal and infancy mortality in Babol from 2010 to 2014 in rural areas.

METHODS: This cross-sectional study was done based on existing and registered data over a period of 5 years in rural areas. In this study, all deaths to 28 days and one month to one year of live births were examined in rural areas covered by Babol University of Medical Sciences based on reason and gender.

FINDINGS: The number of live births in rural areas of Babol in years of 2010 to 2014 was 2895, 2844, 2951, 3080 and 2801, respectively. The number of deaths under one year during the years of 2010 to 2014 was 19, 32, 24, 21 and 20, respectively. The lowest neonatal mortality rate in years of 1392 and 1393 was 3.57 in 1000 and the highest rate was in 1391, about 5.42 per 1,000 live births, respectively. The highest mortality during infancy was in year of 2011 about 5.89 and the lowest mortality was in year of 1389 about 2.76 per thousand people.

CONCLUSION: The results showed that the neonatal and infancy mortality rate in Babol has been relatively stable and favorable.

KEY WORDS: *Mortality, Neonatal, Infancy.*

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Introduction

Providing and promoting the health of children under one year as a vulnerable group in health care is important. The mortality rate of children under one year is the most significant indicators of development in different societies. This statistical index not only shows the quantity and the number of deaths but also is equally indicative of the quality of life (1). High mortality of children has an adverse economic and social effects that by elimination of the causes of mortality and reduction of child mortality the social hygiene can be upgraded (2). Infant mortality is the most important indicator that reflects the development of the country.

The reason for choosing this index as an indicator of development, is the effect of social and economic factors in increasing or decreasing it. Every year nearly 11 million children in the world, 30 thousand children every day and every minute 20 children die before 5 years old. These deaths occur in low- and middle-income countries, especially in Africa and South Asia (3). In recent years in most countries, the mortality rate of children under 5 years old was reduced; in a study conducted in 187 countries, the death of children under 5 years, decreased from 11.9 million in 1999 to 7.7 million in 2010 that 2.3% per year was for deaths less than one year (4).

Several studies in Iran showed a decline in child mortality in recent years. The mortality rate for children under 5 years reduced from 44 per thousand live births in 2000 to 25 in 2010 (5). Studies showed that the most common cause of death for children under one year in America was congenital and chromosomal malformations (5), that also the same pattern can be observed within the country (1).

In recent years, infant mortality has decreased in developed countries but still it is high in developing countries (1). The neonatal period is said to first 28 days of life (6) Neonatal morbidity and mortality in the first 24 hours has the highest rate and is accounted for 65% of infant mortality. Iran is among the countries where the infant mortality rate is considered moderate (7). According to the World Bank, neonatal mortality rate from 18 per thousand live births in 2001 reached to 12 per thousand live births in 2015 (8).

In general, congenital anomalies and diseases of premature newborns, are the main cause of death in infants in most communities. In countries with low socioeconomic status still causes such as congenital infections and complications of pregnancy and childbirth are the leading cause of death and in developed countries the lack of low birth weight, prematurity and congenital anomalies are more common causes (9).

In Iran, based on death registration system, the most common causes of neonatal deaths are diseases and conditions of birth, prematurity and low birth weight, congenital anomalies and infections (7). However, due to the unavailability of the mortality of newborns and infants in the city of Babol compared to the average of country and the world, this study aimed to determine the prevalence of deaths during the neonatal period and infancy in the rural areas of Babol in the years 2010 to 2014.

Methods

This cross-sectional study was done based on the available and registered data in Babol during the period of 2010-14. In this study, all deaths up to 28 days from live births and the death of one month to one year among the live births were studied in rural areas covered by Babol University of Medical Sciences.

The required data were extracted from the primary data forms and questionnaires of Child Health Bureau of the Ministry of Health, Treatment and Medical Education that was completed by experts on the children death from Health Center and affiliated hospitals of Babol. The data were analyzed by SPSS 20 statistical software.

Results

The number of live births in rural areas of Babol in 2010-14, were respectively, 2895, 2844, 2951, 3080 and 2801 people. The number of deaths under one year in the years 1389-93, were respectively, 19, 32.24, 21 and 20 (table 1).

Respiratory infection in these years respectively in 0, 3, 3, 4 and 1, people and prematurity respectively, in 8, 6, 8, 3 and 7, people abnormalities respectively in 10, 12, 6, 8 and 4 people accounted for deaths. The lowest incidence of infancy death in years of 92 and 93 was 3.57 in 1000 and the highest in year of 91 was at a rate of about 5.42 per 1,000 live births (Fig 1). The highest mortality in under the age of one month to one year was at a rate of 5/89 per thousand in year of 90 and the lowest was at a rate of 2/76 per thousand in year of 89 (Fig 2).

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Table 1. Distribution of less than one year mortality rate in rural areas during the 5-years in Babol by year

Year	Sex	Less than 28 days	One month to one year
89	Male	6	4
	Female	5	4
90	Male	2	8
	Female	13	9
91	Male	8	4
	Female	8	4
92	Male	7	6
	Female	4	4
93	Male	8	5
	Female	2	5

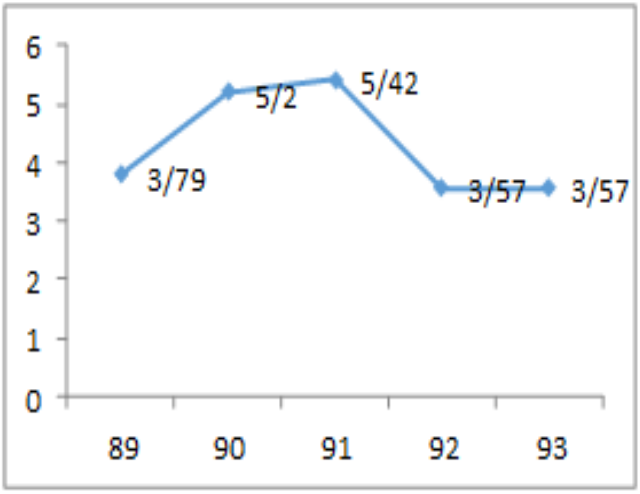


Figure 1. Infancy mortality rate (per thousand live births) in different years in rural areas of Babol

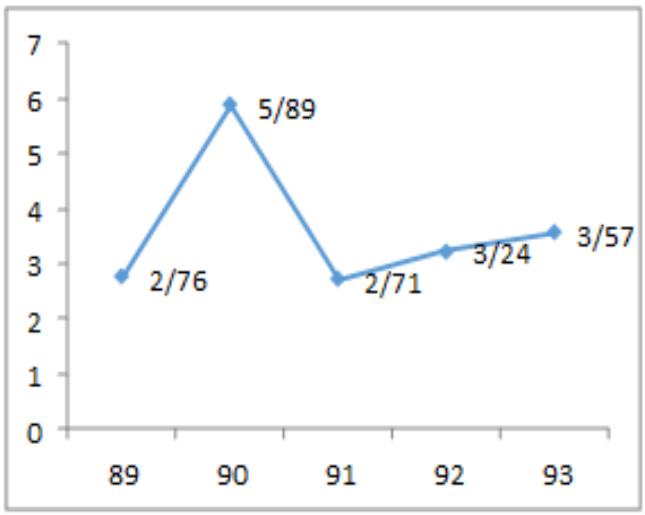


Figure 2. Prevalence of mortality (per thousand live births) during one month to one year in rural areas of Babol

Discussion

The results showed that the prevalence of infant mortality in rural areas of Babol in the studied years was between 3.57 and 5.42 in thousand live births. According to World Bank reports this is much lower than reported prevalence of neonatal deaths, the rate of 5.9 cases per thousand people (8).

International comparison shows that infant mortality rate in our region is slightly higher than other countries Such as Austria (1.2 per thousand), Germany (1.2 per thousand), Italy (1.2 per thousand), Belgium (2.2 per thousand), France (2.2 per thousand) , Cuba (3.2 per thousand), Ireland (3.2 per thousand), the UK (4.2 per thousand), the Netherlands (4.2 per thousand), Denmark (5.2 per thousand) , Latvia (5.2 per thousand), Croatia (6.2 per thousand), Switzerland (7.2 per thousand) and Spain (8.2 per thousand) which have the mortality rate between 2 and 3 per thousand live births. (8). Maybe one of the reasons for lower infant mortality in our study is the standards of infant's hospital discharge and following up of discharged regarding to existence of qualified teachers in neonatology. The most common causes of neonatal deaths recorded among infants was abnormality and prematurity. In a study was conducted by Nouri et al in Golestan province, the most common cause of death was prematurity accounted nearly half of all causes of death (7). In a study was conducted by Lu and colleagues in China, congenital abnormalities and pneumonia were noted as the most common cause of death in premature infants (11). In another study was conducted in Peru by Ávila et al, The most common cause of infants death was prematurity accounted for 1.25% of the causes of neonatal mortality (12) that is similar to this study. Given that failure is a common cause of neonatal mortality which is also preventable, therefore prevention of preterm delivery and control of born preterm infants can be effective in controlling neonatal mortality. In addition, the mortality rate in children aged one month to one year during the studied years, the results showed that the prevalence of child deaths in this age mentioned as infancy (infant) has been between 2.71 and 5.89 in thousand live births. This reported amount is much lower than the prevalence of infant deaths, according to World Bank that has expressed the rate of 13.4 per thousand people (8). The obtained international comparison shows that infant mortality rate in our area is similar to countries such as Canada (3.4 per thousand) and Poland (5.4 per thousand). Moreover, the mortality rate is higher in

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this area than countries such as Iceland (6.1 per thousand) and Finland (9.1 per thousand), which have a mortality rate of less than 2 per thousand people (8). The results of this study showed that the infant mortality rate and the infancy mortality rate is in a desirable level in our region and during the 5-year period, the mortality rate in total has been fixed.

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