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**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.580837>Available online at: <http://www.iajps.com>**Research Article****INVESTIGATING THE MORTALITY CAUSES OF 1-59 MONTHS
BABIES OF VILLAGE FROM 2012 TO 2015, ZAHEDAN, IRAN****Mohammad Behnampoor¹, Mohamad Reza Havasian², Narjes Sargolzaei³, Zohreh Mahmoodi⁴,
Morteza Salarzaei⁵, Jasem Mohamadi^{6*}**¹Student of Medicine, Students Research Committee, Zahedan University of Medical Sciences, Zahedan, Iran.²Department of Periodontics, School of Dentistry, Ilam University of Medical Sciences, Ilam, Iran.³Department of Community Medicine, Infectious Diseases and Tropical Medicine Research Center, Zahedan University of Medical Sciences, Zahedan, Iran.⁴Department of Cardiology, Zabol University of Medical Sciences, Zabol, Iran.⁵Student of Medicine, Students Research Committee, Zabol University of Medical Sciences, Zabol, Iran.⁶Department Pediatrics, Faculty of Medicine, Ilam University of Medical Sciences, Ilam, Iran.**Abstract:**

Since the mortality of 1-59 babies is the most serious challenges facing human society and an important indicator of the health and development of countries, providing solutions to reduce this rate as much as possible is of paramount importance. The main objective of the present study is to examine mortality causes of 1-59 months babies in villages under the protection of Zahedan University of Medical Sciences from 2012 to 2015. The present cross-sectional study was conducted through census. The study included the death of all babies registered in Zahedan villages from 2012 to 2015. Required data was collected using raw information form and Child Health Bureau of the Ministry of Health standard questionnaire; SPSS, version 18, was used to process and analyze collected data. The present study examined the death of an overall number of 1252 Zahedan village babies aged between 1 to 59 months; 752 infants aged less than month and this age group turned out to have highest mortality rate; i.e. 60%; the lowest mortality rate, 16.7%, happened in the age group of 1 to 4 years. The most common causes of death included perinatal disease (29.8%), unintentional injuries (17.5%), respiratory system diseases (13.2%), infectious and parasitic diseases (6.5%), congenital and chromosome diseases (6%), and cardiovascular disease (2.5). Since the highest mortality rate, 29.8%, is related to perinatal diseases of infants, couples' pre-pregnancy care and counselling can play crucial role in decreasing the rate of baby, and specially infants, mortality.

Keywords: Mortality, 1-59 Months Babies, Rural, Zahedan, Iran.**Corresponding author:****Jasem Mohamadi,**

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INTRODUCTION:

Providing, maintaining, and promoting public health, and safety of babies aged between 1 to 59 months as a vulnerable group, is of paramount importance in health services and is considered as an index of development at the global level [1]. The mortality rate of 1 to 59 months babies has witnessed significant decrease in late twentieth century in developing countries [2]. However, still 11 million babies die each year around the world, creating considerable figure of 30 thousand babies for each day and 20 babies for each minute; it is also worth mentioning that statistics is not fully registered in some less developed countries [3, 4]. Determining the rate of child mortality as an indicator of health and basic human development index has become of paramount importance during recent decades, especially since the holding of the World Summit for Children in 1990. The rate of this causality is higher in low- and middle-income countries, especially in sub-Saharan Africa and South Asia [5, 6]. More than 42% of deaths among babies occurs between the age periods of 1 to 59 months, with 80% of this amount occurring below the age of one year [7]. Child mortality is categorized in three different groups of mortalities in preterm infants, neonatal mortality, and death of children under one year; maintaining and improving the health of babies aged less than one year, as a vulnerable group, is of paramount importance in health care and service research and discussion [8]. According to studies and research, the rate of the mortality of babies aged between 1 to 59 months was 80 out of 1000 births in low-income countries and 6 in 1000 births in high-income countries [9]. Despite considerable decrease in the frequency and rate of child mortality, a great ratio of probable deaths seems preventable [10]. Thus, according to Millennium Development Goals, child mortality rate must decrease by 75% in 2015 in comparison to the figures reported in 1990 [11]. Infectious diseases cause 70 percent of child deaths in developing countries; pneumonia, septicemia, meningitis, and diarrheal disease are four main factors behind 4 million deaths of babies aged between 1 to 59 months all around the world [12]. The results of various studies suggest the reduction of mortality rate of babies aged between 1 to 59 months in Iran; according to various reports, this rate has decreased from 56 out of 1000 births in 1990 to 18 out of the same number of births in 2012 [13]. While with 192 deaths out of each 1000 births, Angola has the first place in infant death rate, Hong Kong has the least number of child death, with a rate of 2.79 deaths out of each 1000 births [14]. In fact, most deaths are caused by preventable diseases, which, in turn, shows that 6.5 deaths can be prevented by using interventions cost and investment and planning in health care systems [15, 16]. The main objective of the present study is to examine mortality causes of 1-59

months' babies in villages under the protection of Zahedan University of Medical Sciences from 2012 to 2015.

MATERIALS AND METHODS:

The present cross-sectional study was conducted through census. The study included the death of all babies registered in Zahedan villages from 2012 to 2015. The exclusion criterion was the death of all non-villager or non-Iranian babies who happened under the surveillance of Zahedan University of Medical Sciences during 2012 to 2015. Required data was collected using raw information form and Child Health Bureau of the Ministry of Health standard questionnaire, including several items such as sex, age, life status, educational level of the caregiver, and cause of death which, according to the International Classification of Diseases included, included categories of unintentional accidents, congenital and chromosomal diseases, respiratory diseases, cardiovascular diseases, infectious diseases, central nervous system diseases, gastrointestinal diseases, nutritional, endocrinological, and metabolic diseases, cancers, urinary tract diseases, mental and behavioral diseases, blood diseases, prenatal diseases, badly defined status, and miscellaneous. Place of death variable was categorized in six groups of hospital, house, in transition, outpatient centers, at the incident scene, and miscellaneous; this data was extracted and analyzed.

Statically analysis

The data were analyzed using the SPSS (version 18, SPSS Inc., Chicago, USA, IL) software using the chi-square method [17, 18].

FINDINGS:

A total number of 1252 of infants, 683 boys (54.5%) and 571 girls (45.5%), died between 2012 to 2015, who were under the protection of Zahedan University of Medical Sciences were examined through census. According to death time frequency distribution, the highest frequency was related to less than one month age, 752 cases (60%), and the lowest frequency was related to the age range between 1 to 4 years, 210 cases (16.7%). In regard with place of life distribution frequency, the results showed that all deceased babies lived with their parents. Investigating educational level of the caregiver of the deceased baby showed that the caregiver was illiterate in 883 cases (70.4%) and had college education in 6 cases (0.5%) (Table1). According to place of death distribution frequency, highest rate was (698 cases, 55.1%) related to miscellaneous, unclear places and lowest rate (8 cases, 0.6%) was related to outpatient centers (Table 2). The results of the analysis of death cause frequency distribution showed that highest rate, 473 cases (29.8%), was related to prenatal diseases and the lowest rate, 2

cases (0.2%), was related to mental and behavioral diseases (Table 3). According to the relationship between sex and death cause analysis, there was no significant

association between the cause of death and the sex of the baby (Table 4)($P>0.005$).

Table 1: Educational level of the caregiver of the deceased infant in Zahedan villages

Infant caregiver educational level	Illiterate	Elementary	Secondary	High school	College
Frequency	883	280	64	21	6
Percent	70.4	22.3	5.1	1.7	0.5

Table 2: Place of death of the infants aged between 1 to 59 months in Zahedan villages.

Place of death variable	Hospital	House	In transition	outpatient centers	At the place of the accident	Miscellaneous (unclear)
Frequency	194	299	16	8	46	691
Percent	15.5	23.8	1.3	0.6	3.7	55.1

Table 3: Frequency distribution of mortality causes in babies aged between 1 to 59 months in Zahedan

Death variable	Frequency	Percent
Unintentional accidents	223	17.3
Congenital and chromosomal diseases	75	6.0
Respiratory diseases	165	13.2
Cardiovascular diseases	30	2.4
Infectious diseases	82	6.5
Central nervous system diseases	14	1.11
Gastrointestinal diseases	16	1.3
Nutritional endocrinology and metabolic disease	10	0.8
Cancers	6	0.5
Urinary tract diseases	6	0.5
Mental and behavioral disorders	2	0.2
Blood diseases	4	0.3
Perinatal diseases	374	29.8
Badly defined status	5	0.4
miscellaneous	242	19.3

Table 4: The association between sex of the infant and mortality causes among babies aged between 1 to 59 months in Zahedan villager.

Death cause variable/sex	Unintentional accidents	Congenital and chromosomal malformations	Respiratory disorders	Cardiovascular diseases	Infectious diseases	Central nervous system diseases	Gastrointestinal diseases	Nutritional endocrinology and metabolic disease	caners	Urinary tract diseases	Mental and behavioral disorders	Blood diseases	Perinatal diseases	Badly defined status	miscellaneous
Boys	117 52.5 %	41 54.7 %	87 52.7 %	18 % 60	34 41.5 %	7 % 50	10 62.5 %	7 % 70	2 33.3 %	5 83.3 %	2 100 %	0 0 %	215 57.5 %	3 % 60	135 55.8 %
Girls	106 47.5 %	34 45.3 %	78 47.3 %	12 % 40	48 58.5 %	77 % 50	6 37.5 %	3 % 30	4 66.7 %	1 16.7 %	0 0 %	4 100 %	159 42/5 %	2 % 40	107 44.2 %
P Value = 0.158															

DISCUSSION:

Death in general and death of an infant in particular, is a phenomenon which is affected by several factors and determinants the severity of which results in either increasing or decreasing the rate of mortality [19]. Another point which is mentioning is that the death of an infant is affected by several socio-economic, cultural, genetic, medical, hygienic, and other factors; consequently, focusing on a single dimension of the issue won't be of much contribution [19, 20]. In fact, determining public health level of a society is useful to assess the health status of the community over time or at a specific point in time is; consequently, the main objective of the present study is to examine mortality causes of 1-59 months' babies in villages under the protection of Zahedan University of Medical Sciences from 2012 to 2015. During a systematic review conducted in 2013, the mortality rate of following age ranges was estimated out of a thousand births for infants: 14 for less than 7 days, 4.4 for 7 to 28 days, 13.2 for 1 to 12 months, 13.1 for 1 to 4 years, and 44 for less than five years [21]. According to the results of the present study, the highest rate of mortality, 83.3%, among village children, aged between 1 to 59 months, was related to

babies and infants in general, 60% for babies and 23.3% for infants in particular; this is consistent with the results of those studies according to which highest mortality rate in Africa and other cities of Iran is related to those babies aged less than one month [22-25]. Studies conducted in Iran and other countries indicate higher incidence of death among boys. Investigating the causes of death in Kurdistan showed that death happens in 55.7% of boys and 44.3% of girls; the proportion of the death of boys in comparison to girls is 1.26 in Africa; the incidence of the death of boy infants aged between 1 to 59 months is almost 2% more than girl infants in less developed Asian, American, and African countries [22, 26 and 27], which is consistent with the findings of the present study; however, according to Namakian et al study (2009), the mortality rate of girls turned out to be 57.6% and the rate of death among boys was 42.4% in Birjand [14]. The highest rate of mortality rate, 29.8%, in regard with the cause of death, was related to prenatal diseases and the lowest rate, 0.2%, was related to mental and behavioral diseases in the present study; this is not consistent with the findings of the study conducted in Birjand, according to which congenital diseases was the most common cause of

death in infants aged between 1 to 12 months, and with the findings of the other study conducted in Zabol which introduced unintentional incidents as the most common cause for babies aged between 1 to 59 months [14, 23]. The results of studies conducted in 2011 in China and southern Africa showed that unintentional incident was the main cause of death in babies aged between 1 to 4 years [22, 28]. Other studies conducted in China indicated the rate of the incidence of death as a result of pneumonia and diarrhea has decreased from 23.4% and 6% in 1996 to 15.6% and 3.7% in 2006, which, according to the findings of the present study, shows a transition from infectious to non-infectious diseases [10, 29]. Educational level of the caregiver, who happens to be the mother of the infant in the majority of cases, can play role in the incidence of the death of the baby; the highest rate, 70.4% of the educational level of the caregiver of the deceased infant, who was the mother of the infant in all cases, was related to illiterate category, which is consistent with the findings of all other studies [30, 31]. The results of the present study showed that 15.5% of deaths happen inside the hospital and 84.5% occur outside the hospital. According to the findings of the present study, 100% of deceased infant lived with their parents; it was expected for an infant who lived with both parents to receive more care and have much better a life in economic, social, and mental terms.

CONCLUSION:

According to the findings of the present study, 76.8% of deaths among Zahedan Villages infants occurred for prenatal diseases, 17.5% for unintentional incidents, 13.2% for respiratory diseases, 6.5% for infectious diseases, 6% for chromosomal diseases, 2.5% for cardiovascular diseases, and 1.3% for gastrointestinal diseases. It must be mentioned that the incidence of all these cases is either preventable or controllable; thus, the implementation of some interventions are required in order to decrease the mortality rate of infants.

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