Original Article

Examining the Factors Related to Mortality Amongst One Year Old and Younger Children in Yazd City During 2011 to 2013 Period

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Abstract

Introduction: Provision, maintaining and improving health status of one year old and younger children as a vulnerable group has been considered as an important issue pertaining to healthcare and medical services. Index of mortality of under one year old children is among most important healthcare indices; and is known as the most important index of healthcare status of any society as well as the quality of life in any region. The present study aimed for examining causes of mortality amongst one year or younger children who were covered by health centers in Yazd city during 2011 to 2013 period.

Materials & Methods: This descriptive-analytical study was conducted using control-test group method. All recorded cases of mortality for children in Yazd city during the first year of their life were included in statistical population, while for each case of mortality two cases of living children were examined as control group. The data were collected by direct visits on healthcare centers in the city and examining case files for children. Obtained data were analyzed using SPSS 20 software package.

Results: 116 mortality cases were examined in total which included 41.4% boys and 58.6% girls. Some variables such as type of marriage between parents, mother and father's education level, type of labor and number of previous pregnancies were significantly related to children's mortality rate.

Conclusion: suggest that paying specific attention to infants at the time of birth, improving knowledge level amongst mothers and families, providing standard level healthcare prior to pregnancy and after that, and also developing programs which aim for improving economic-social and cultural status amongst women and men would be effective on reducing children mortality rates.

Keywords: Infant mortality, Susceptibility factors, Premature labor, Suffocation, Abnormality.

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Introduction

Since infants and young children are the most vulnerable people in any society, their dead is one of the most painful events which can be hardly bore by anyone. Although elderly people are also vulnerable as well, but their death would not be projected as so painful since occurs in late years of their lives. Therefore, infant mortality rate which is considered as a specific mortality rate is more seriously investigated by experts and researchers in demography and healthcare fields. This, on the other hand is a healthcare index since higher rates of disease and mortality especially amongst infants, not only indicates lower healthcare level in the society, but insufficiency of healthcare education as well. Yet on the other hand, infant mortality issue is also an index of economical, social and cultural development, because keeping the infants alive – as the most vulnerable members of society – is not a task performed only by families but a consequence of deep effects imposed by healthcare and medical services and social security and welfare systems [1].

Therefore, the children mortality index is receiving much attention by studies regarding human development levels rather than general mortality index since general mortality rates cannot provide researchers with any difference amongst countries in sense of development levels. Considering children mortality index it could be inferred that how much a country is developed and how much decrease has been realized along the path of development. Mortality rate of children at the first year of life is an appropriate index which indicates the level of healthcare in any country. This index is both quantitative and qualitative, and generally is one of the most important and expressive indices of development according to UNICEF [2].

Considering the importance of children mortality rate as an index of economic and social development as well as healthcare and medical development of the countries; and based on existing evidences and conducted studies, this index has desirably decreased in developing countries and especially in Iran. However, although the numbers have decreased in Iran, more research and comprehensive studies are required to be done. The mentioned index has been chosen for this study because different social and economical factor would significantly affect this index in our country. Since Iran is a country that is taking steps towards development, more measures are needed to further reduce children mortality rate. Also no study has been conducted under the above title in Yazd province during recent years, therefore research and study in this field is recommended. The present study aimed for investigating factors which are related to children mortality rate.

Materials & Methods

This descriptive-analytical study was conducted using control-test group method, At first, blank

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case data sheets was obtained from public health center and were further examined by expert professors, then our chosen variables were integrated into the data collecting sheet. Real information was collected by visiting health centers across the city and examining cases of child death. Two cases of living children were considered as the control cases for each case of a deceased child. According to health center records, 132 cases of deceased children were recorded in Yazd city during the period of 2011 to 2013 of which 116 cases included complete information. Also 132 cases of living children were available and were further examined. The present study was of case-control type. Finally, the collected data were analyzed through statistical tests at significant level of less than 0.05.

Results

Findings of the study are reviewed in this section. 48.3% of cases under study included boys; while 51.7% were girls. Cause of death was reported as prematurity (14.4%), Infection (4.3%), mother health problems (2%) and suffocation (0.3%) for those children. Table 1 shows characteristics of examined cases in summary. And Table 2 shows the range variables which entered the statistical tests. Data in Table 3 show the distribution of qualitative variables examined pertaining to children. This table includes the variables of labor type, type of marriage, type of pregnancy, child's gender, and parents' education level in order to facilitate analysis of effects of various factors on children mortality rate.

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Table 1: Descriptive summary of case characteristics in Yazd city, 2011 - 2013

Variable	Characteristics	Frequency	Percent
Labor type	Normal	184	52.9
	Cesarean	164	47.1
Father's Education level	Primary school and lower	133	38.3
	Guidance school	139	39.9
	High school diploma	71	20.4
	University	5	1.5
Mother's Education level	Primary school and lower	100	28.8
	Guidance school	160	46
	High school diploma	82	23.6
	University	6	1.7
Marriage type	Between relatives	78	22.4
	Non-relatives	270	77.6
Father’s occupation	Government employee	289	22.4
	Free	89	77.6
Mother’s occupation	Housewife	325	93.4
	Employee	23	6.6
Type of pregnancy	Intentional	317	91.1
	Unintentional	31	8.9
Medical factors	Infection	12	3.4
	Suffocation	1	0.3
	Prematurity	3	14.4
	Mother health problems	7	2
Multiplet	Single	330	94.8
	Twins or more	18	5.2

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Table 2: Difference of range variables in statistical study, Yazd city, 2011 - 2013

Variable	Deceased children		Living children		Test value	Sig. level
	Mean	Std. Error	Mean	Std. Error		
Father's age	31.03	5.872	31.53	5.888	-0.760	0.448
Mother's age	27.25	5.407	27.34	5.264	-0.150	0.881
Age at labor time	27.15	5.388	27.25	5.326	-0.177	0.589
No. of Previous pregnancies	1.21	1.255	0.91	1.028	2.241	0.017
Marriage age	21.31	3.066	21.43	3.004	-0.351	0.746
Parents' age difference	4.22	3.170	4.53	3.085	-0.877	0.381
Birth interval	4.31	3.384	4.32	3.552	-0.033	0.946

Table 3: Percentile distribution of living and decsased children pertaining to variables under examination: The limits and domains

Variable	Deceased child	Living child	Test value
Labor type:			
Normal	36.2	61.28	χ 2=19.4
Cesarean	63.8	38.8	Sig=0.000
Marriage type:			
Relative	36.2	14.7	χ 2=24.092
Non-relative	63.8	85.3	Sig=0.000
Type of pregnancy:			
Intentional	89.7	91.8	χ 2=0.433
Unintentional	10.3	8.2	Sig=0.506
Gender:			
Male	41.4	51.7	χ 2=3.314
Female	58.6	48.3	Sig=0.069
Father's education level :			
Primary school and lower	31.7	62.9	χ 2=9.36
Guidance school	40.8	59.2	Sig=0.025
High school	34.5	65.5	
University	19.2	80.8	
Mother's education level:			
Primary school and lower	48.5	51.5	χ 2=9.736
Guidance school	37.3	62.7	Sig=0.021
High school	35	65	
University	21.2	78.8	

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Discussion

This study examines the factors related to children mortality over the period of 2011 to 2013 in Yazd city as an important human and healthcare development index. The results suggest that there is a significant relation between labor type and child mortality rate. Study findings are in concordance with R. Faraji et al. [3], K. namakin and Sharif zadeh [4] and also M. Fallahi, Joudaki, Mohseni Bandpei [5]. The results indicated that the more cesarean cases of labor, the more is mortality rate. In other words, cesarean methods of labor need to be kept at lowest possible rate in order to increase the survival chance and life expectancy of newborns.

Also parents' education level was significantly related to children mortality rate at the first year of life. Therefore, the results obtained from this test are in concordance with Sheikh Ghyaseddin [6], United Nations' research in 1985 and also davazdahemami et al. [7]. Testing this hypothesis showed that a significant trend exists between parents' educational level and children mortality rate; i. e. higher educational level of parents would lead to lower rate of children mortality. So the more educated parents are, the less cases of child mortality would occur. Therefore, we suggest that specific attention should be paid to educating young people especially young women through long-term educational programs. This would be considered as a primary solution regarding children health while acknowledging the essential role of women in nurture and improving children's health status. Planners of education and nurture systems need to take required measures towards encouraging parents to get higher education.

The study results suggested that a significant difference exists between labor type and children mortality rate. However they are divergent from K. Namakin and Sharifzadeh [4]. As the significant relation between marriage type and children mortality rate was approved, we inferred that marriage between non-relatives would act as a factor favoring longer life expectancy for children and less mortality cases amongst them.

Type of pregnancy was another factor investigated through this study. The results indicate that there is no significant relation between this variable and children mortality rate. Also gender is not significantly related to mortality rate amongst the studied deceased children. Those findings are not in concordance with results reported by Amani et al. [2]. However, they are consistent to Salamati et al. and also Faraji et al.

The studies conducted by Mohagheghi and Mousavi [8], Sheikh ghyasi [6], Erfan [10] and United Nations [11] have shown that there is no significant relation between paraents' age and children mortality rates. The results obtained from this study are in concordance with those

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mentioned above. Considering the mean age of parents (mean fathers' age was 31.03 years; mean mothers' age was 27.25 years) we could draw this important conclusion that parents were in fertility age, considering the age of fertility should not be less than 18 and higher than 35 for mothers.

The results obtained regarding the mothers' age at the time of child birth and child mortality rate indicated that no significant relation exist between those two variables. It can be said that mothers under examination by this study had not been married at small age; this is a factor that leads to lower child mortality rate. The younger mothers be at the time of child birth, the faster they enter fertility period; and this would lead to higher children mortality rate.

The obtained results show no significant relation between parents' age difference and children mortality rate. The results reported by Emran [9] and UN [10] as well as Mohagheghi and Mousavi [8] approve our findings here. That variable could not affect children mortality rate since there is not a significant difference between mean fathers' and mothers' age in our cases. According to other scientific findings, the age difference between father and mothers' age should not exceed 7 years. As the present study revealed, parents' age difference is 4.22 years which lies in appropriate range; and this factor has lead to lower children mortality rate.

International studies pertaining to fertility in various countries suggest that a reverse relation exists between children mortality rates and birth intervals, but on the other hand, this hypothesis has been approved by Namakin and Sharifzadeh; the results obtained through the present study is in concordance to the latter. Mean birth interval was 4.32 years in this study which is aligned by applied standards (min. 3 years). In other words, shorter time interval between two successive child birth for would impose some dangers to the health status of both mother and child at the pregnancy period and after that. Therefore, birth interval was not identified as an effecting factor on children mortality cases in general.

According to the results of tests performed regarding relation between number of previous pregnancies and mortality rate, we have deduced that a significant relation exists between those two variables. That means the chance of survival for every child would increase as the number of previous pregnancies increases. Results of the present study in this regard are aligned with results of Hadavi et al. [11].

Study results suggest that no significant relation exist between child's birth rank and mortality rate. This is contrary to the study which was conducted in rural areas of Punjab province, India as well as study conducted by Ashraf in Bangladesh (1986). Test results showed that median birth rank for the children under study was 2. According to reported results, children who are born in first, fifth or sixth ranks have

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survival chances much lower than the children who are born in second to fourth ranks. Since the median birth rank is 2 in the present study, we theoretically expected a significant relation between birth rank and mortality rate which was not approved in practice.

Multi-variate regression analysis showed that amongst variables which were entered into logistic regression, only labor type and marriage type were significantly important.

Conclusion

This cross-sectional study provided us with an opportunity to investigate the causes of children mortality. The analysis showed that although many causes of children's death are evitable, the statistical numbers of children mortality are still significant while effective factors on children mortality are quite predictable. A futuristic study in this field covering all pregnant women and recording more precise information pertaining mothers' health records as well as child death causes and process would highly contribute to this field of research in future.

Limitations

Missing profile information and unreadable data

Required profiles not available in centers; basically, the profile exits the center following migration

Unavailability of profile for some children which caused the researcher to omit them

Lack of an integrated and systematic registration system in health centers of Yazd city

References

1. Tamanna S. Basics of Demography. Tehran :Payam-e Nour University Press, 3rd Ed; 2007 (Persian).
2. Amani F, Barak M, Aminisani N, et al. Neonatal Mortality and Its Related Factors in Hospitals of Ardabil, 2002-2003 . Journal of Ardabil Univercity Medical Science. 2005;5(4):305-310 (Persian).
3. Faraji R, Zarkesh M, Ghanbari A, et al. Assessment of the Causes and Risk Factors Associated with Neonatal Mortality Based on International Coding Diseases. Journal of Guilan University of Medical Sciences. 2012;21(84):42-46 (Persian).
4. Namakin K, Sharifzadeh G. Examining mortality amongst children under one year old and effective factors in Birjand city. Journal of Knowledge and health. 2008;3(1):16-21(Persian). available in http://knh.shmu.ac.ir/index.php/site/article/view/199
5. Fallahi M , Joudaki N , Mohseni Bandpey H . Evaluation of Causes of Neonatal Mortality in Shohadaye Tajrish Hospital, during Years 2004-2007. Pajoohandeh Journal. 2009;14(1):43-46 (Persian).
6. Giashuddin MS, Hosain, MM. Factors associated with child health in urban areas of Bangladesh. Bangladesh Journal of Scientific Research; 2011;24(2):145-154

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7. Davazdahemami S, Abd Yazdian Z, Montazari M, et al. Social factors associated with infants' mortality. Journal of Shahrekord University of Medical Science. 2001;3(2):67-72 (Persian).
8. Mohagheghi P, Hashemzadeh Esfahani M, Mosavi Kani K. Determining the frequency of infants mortality cases in Tehran during 2009. Razi Journal Medical Science. 2013;19(103):41-47 (Persian).
9. Omran A. The epidemiologic transition: a theory of the epidemiology of population change. The Milbank Memorial Fund Quarterly change.1971;49(4):509-538
10. United Nation economic and social commission for western Asia. infant and child mortality in western Asia. Baghdad: United Nation economic and social commission for western Asia;1989.
11. Hadavi M, Alidalaki S, Abedini nejad M, et al. Effective Factors on Perinatal Mortality in Rafsanjan Hospitals (2004-2006). Journal of Rafsanjan University of Medical Sciences. 2009;8(2):117-126 (Persian).

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