



PREDICTORS OF CHILD MORTALITY: A CASE STUDY IN DISTRICT THARPARKER, SINDH, PAKISTAN

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ABSTRACT

The present study focuses on predictors that are affecting the child mortality that has emerged as a calamity District Tharparkar, Sindh. The Infant & child mortality was one of the major millennium development goals (MDGs), and also in Sustainable Development Goal 2015-2030, "goal 3, ensure the healthy lives and promote well-being for all at all stages" has got extensive concentration and improvements, nowadays. This situation is excellent in the developed nations as they surprisingly have decreased child mortality rate, but on the other hand, the developing countries, like Pakistan, require a lot of efforts for considerable and extensive reduction in child mortality. However, the child mortality was examined by the researcher himself, and three hundred interviews were conducted for the target population of valid respondents. Cluster sampling technique was applied to collect data from victimized families that were confirmed from the district health department. A scheduled interview was used as a tool which was consisted of structured and semi-structured questions. The findings represent the relationship of child mortality with etiologies such as socio economic factors, nutrition deficiency in infancy, poor child health care by parents, non-availability of medicine, specialists, doctors, and hospitals, as well as drought seasons that had created this disaster in this region. Linear regression model, ANOVA and multiple regression model show that the value of R-Square is 0.493, F-value is 20.85 and overall regression coefficient is significant. The health status of children was explained by the nine variables including education, wife's education, family structure, income, number of living children, having proper breakfast, eating vegetables in daily nutrition, eating fruits, and taking supplements during pregnancy. This shows that overall model is statistically significant. The overall significance of the model can also be judged by the F-test. The F-value is 20.85 which is significant at less than one percent level of significance. This also suggests that the model is highly significant.

Keywords: Child Mortality, Predictors, Mean and Standard Deviation, ANOVA, Multiple Regression.

INTRODUCTION

More than one million children die every year on the first day of their life. Save the Children reports point out that half of the first day deaths in the world could be avoided by providing access to free health care and a skilled midwife for mother and baby. The world has succeeded a lot in controlling child mortality during the past decade. The child mortality is almost half from 12 million to 6.6 million. This has been achieved through global political action on immunization treatment of pneumonia, diarrhea and malaria, family planning and nutrition, but this achievement could be fruitless if urgent action is not taken to tackle the high number of newborns' dying. In spite of the efforts of the Government to lessen the infant mortality rate

in the casualty, Pakistan is still among the ten countries of the world where infant deaths are the highest. According to a study published in the Lancet medical journal that studied the differences in children's death in 194 countries, sixty percent of the world 5.9 million children died before reaching 5 years of age last year. These children belonged to ten countries in Asia and Africa, in spite of that fact that as compared to 2010 the number of under five deaths fear by four million. This shocking trend is due to pneumonia prevailing in the country and lack of protection against it.

In the world, Pakistan is seventh country where every year 90,000 children die before the age of five years due to pneumonia. Although Government provided vaccination for pneumonia for all children, people do not know its importance. Moreover, every child cannot have access to hospitals. The pharmaceutical company is current launching a campaign on a large scale to make the people aware of the importance of pneumonia vaccines; if only the government became more committed to the cause as well, thousands of lives would be saved. According to the Sindh Institute Indicator Survey (MICS) 2014, the child death rate in Sindh was 82 deaths per 1000 live births (8.2 percent) and under five death rates was 104 per 1000 (10.4 percent). Moreover, about four out of ten children under five are underweight and 7 percent are classified as seriously underweight. Forty-eight percent of the children under the age of 5 years are short for their age and twenty-four percent are severely short for their age. The report says that fifteen percent of the children are slim and weak for their height, only one percent are overweight or too heavy for their height. The report says that immunization is important to prevent diseases among children. About 35 percent children of 12 to 23 months of age are given all the recommended vaccines. This shows betterment in comparison with the findings of the survey conducted in 2012. Three percent of the families use arsenic contaminated drinking water, while 39 percent use drinking water showing *E. coli* contamination. About 29.1 percent of births of the children under five are registered (International The News Karachi, 2016)

The Sindh Bureau of Statistics prepared a report that is to be launched soon; it gives shocking figures about the children's death rates in the province. These rates increased since 2012, while in Punjab these figures decreased. In Sindh infant mortality rate was 81 in 1991, while in Pakistan it was 91, and in Punjab was 104. In 2014, after 23 years, Sindh infant mortality rate increased to 82, while Punjab infant mortality rate decreased to 76. The provinces' statistics was based on the 2012 health survey; in Sindh infant mortality rate was 74, while in Punjab it was 88. The infant mortality rate of birth the provinces interested in 2013 and within months Punjab its performance, while Sindh figures deteriorated.

In a health survey in 2012 the questions "why the children are dying in the province with increasing rates, while in other provinces the death rate was decreasing?" was asked. Officials that during the survey the people said that government in Sindh should face accountability, and should answer for what it had done. During its eight-year rule when more children were dying of avoidable deaths, they say that only 4 percent of the population enjoyed health care services in the province, and medicines expenditures are out of reach of 53 percent of population. The report confirmed these realities from independent individuals and groups who said that an average of 30 to 40 percent of health care providers remained absent from their places of duty on any given day, and in rural areas there was great shortage of female staff and specialists. The report also pointed out that children were not properly immunized through



vaccination in Sindh. The number of those who received vaccination in Sindh was less than what was in the Punjab and Khyber Pakhtunkhwa.

According to 2012 health survey figures regarding immunization of children which was 65.5 percent showed better indications followed by Khyber Pakhtunkhwa with 52.7 percent, Gilgit Baltistan with 47 percent, Islamabad with 73 percent, Sindh with 20 percent, and Baluchistan with 16.4 percent. (Mansoor, 2015)

Family planning must be given priority in Sindh's health strategy as the most important tool for decreasing infant and under five mortalities in the province. In Sindh there are many death of mothers, infant and young children that can be avoided; maternal deaths are 24 percent of mortality of women of reproductive age (PDHS 2007). In 2012 the infant mortality ratio (IMR) was 74 percent out of 1000 births. This ratio has now turned to annual deaths of over 97000 infants. These deaths occur basically due to conditions that could easily be eliminated with basic health care. It is internationally accepted that women have very high risks of pregnancy related death when they are too young (less than 18 years) or too old (more than 34 years) at the time of birth, when the birth interval is less than 33 months. At the time of 2012-13 PDHS, 7.9 percent of women (aged 15-19) started producing children. In every 1000 women of this age group, 31 had given birth in urban areas and 41 in rural areas. These young mothers face special health dangers that are further increased by poverty and relating less availability of medical care and health services.

To know the effect of family planning on infant and child mortality simulation of two scenarios were conducted. In one, unachieved need was decreased by raising the CPR to 40 percent (scenario 1). In the second, the unachieved need was eliminated by raising CPR to 51 percent (scenario 2). Decreasing unachieved need for family planning by increasing CPR to 40 percent would decrease infant mortality by 18 percent and child (1-4 years old) mortality by 3 percent. Finishing unachieved need altogether would decrease infant mortality by 35 percent and child (1-4 years old) by 74 percent. This shows that family planning is equally important for bettering maternal health and decreasing maternal and child mortality. For the sound health of mothers while delivering and raising health children, WHO suggests an interval of at least 23 months between births. Birth spacing also plays a vital role in the nutritional status of children under 5 years of age. However, about 33% of woman in Sindh gave birth less than 24 months after the previous birth, while 67% gave birth less than 36 months after the previous birth (Sathar, 2005).

There are many regional differences in under-five mortality in Nigeria, and there are evidences that show that both individual and community level qualities influence health results. Results show that community level differences such as region, place of living, infrastructure of community hospitals delivery, community poverty level and individual level factors such as child's sex, birth order, birth interval, maternal education and maternal age, and wealth index are vital in determining of infant mortality. For example, the results show that there are fewer rates of dying in infancy for children of mothers residing in an area where there is high proportion of hospital delivery. Although community level factors seem to affect the link between individual level factors and death during infancy and childhood. The research indicates again and again that community level qualities are more important to describe the regional differences in child mortality, while individual level factors are more important to describe regional differences in infant mortality. Apart from the region of living, other



community level factors put a lot of effects on infant mortality. These factors include place of living, availability of drinking water in the community, community hospital delivery and community poverty level. This is perhaps due to differences in the provision of health care facilities to rural and urban communities. Thus the study has confirmed that individual and community level factors are vital to describe regional differences in infant and child mortality, so in order to end the regional differences in infant and child mortality, it is important to realize that besides individual level attributes, the characteristics of the community and neighborhood must also be dealt with. The social, economic and health differences are because of the differences in regional distributions of social services, health facilities, housing conditions, and other necessary services (Adedini *et al.*, 2014).

Children of less sensitive and more inactive mothers show stress sensitization. To know and help infants at risk we should fully understand the developmental underpinning of stress regulation. While some active shifts in mother infant interactions might be essential for developing emotion regulations where mother is considered a source of security and safety, so that greater consistency in response may be essential in conditions more subject to change (Laurent *et al.*, 2016).

Objectives

Although much work has been done in the world to explore the predictors affecting infant mortality, still it needs more work with reference to Pakistan to identify such predictors. The underlying social problem is increasing day by day because of not giving proper attention or focus by government and other nongovernmental organizations. The specific objectives of the study were:

- i. To examine the socio-economic, and cultural predictors affected on child mortality
- ii. To study the physical, and social environment on child mortality.

MATERIAL AND METHODS

Social scientists now use the sophisticated methodological tools and techniques in social research. Therefore, methodology is a frame for researcher. “The methodology is an arrangement of clear set of laws and actions on which the whole research build (Nachmias and Nachmias, 1996)”. The Present study was designed to explore the predictors affecting the child mortality in District Tharparkar, Sindh, Pakistan. The population of the research was all those families who had suffered child mortality in Tharparkar District. Thus, three hundred victimized families were taken as a sample and it was drawn from four tehsils of District Tharparkar. Simple random sampling technique was applied to select the valid respondents for interviewing, and required data were collected with the help of District health department. So, the researcher procured the target population immediately. For the purpose of data collection Interview schedule was prepared as a tool for data collection. It consisted of structured, semi structured, and unstructured questions. However, the researcher physically met the valid respondents to collect the required data.

The data were collected from different areas of District Tharparkar. Almost one & half month in 2017 were spent in the process of data collection. During this process, we came to know many other ground realities and aspects which were directly or indirectly related to the present research. After the data collection, the computer software SPSS was used for data analysis. While a series of procedures of coding the data was inscribed and examined with the



assistance of Statistical Procedures for Social Science (SPSS). Afterward, the data were distributed and interpreted in the frequency table. Cross tabulation was also done to see the relationship between different variables. Inferential statistic i.e. ANOVA and multiple regression was applied to streamline the opinion of the respondents in connection to examine predictors that were the main etiology of child mortality.

RESULTS & DISCUSSION

Data Analysis and interpretation is the major part of the research. Without these steps, generalization and prediction cannot be achieved which is the target of the scientific research. Generalization and conclusion were drawn on the basis of characteristics and attitude of the respondents. Results were presented in the form of univariate and multi-variate analysis. The variation within different variables was observed on the basis of Mean and standard deviation.

Table 1: Classification of the respondents' response about child mortality due to famine

Response	Frequency	Percentage
Droughts	170	56.7
Lack of water resources	79	26.3
Environmental factor	39	13.0
Political factors	12	4.0
Total	300	100.0

Drought has been associated with excess mortality through inducing nutrition and health problems, such as malnutrition, micronutrient deficiencies, food- and water-borne diseases, aggravating chronic diseases, declining crop and livestock production, contributing to inflation of food prices, and triggering drought-induced child mortality. Majority of the respondents (56.7%) reported that drought was the main reason of child mortality in the district Tharparkar (table 1). Moreover, 26.3% and 13% of respondent perceived that lack of water resources and environmental factor were the causes of children death in their region. Only 4% of respondents reported that political mismanagement was another cause of this causality.

Table 2: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.644	.122		5.268	.000**
	Education	.233	.034	.362	6.847	.000**
	Wife's education	.109	.045	.128	2.434	.016*
	Family structure	-.112	.033	-.166	-3.448	.001**
	Income	.096	.026	.183	3.749	.000**
	No. of living children	-.071	.026	-.132	-2.786	.006**
	Having proper breakfast	.039	.039	.047	1.002	.317 ^{NS}
	Eating vegetables in daily nutrition	.160	.044	.179	3.629	.000**
	Eating fruits	.221	.042	.258	5.292	.000**
	taking supplements during pregnancy	.182	.042	.212	4.384	.000**

a. Dependent Variable: Children health status

* = Significant

** = Highly-Significant

NS = Non-Significant

The value of R-Square is 0.493. This shows that the 49 percent change in children health status was explained by the nine variables such as education, wife's education, family structure, income, number of living children, having proper breakfast, eating vegetables in daily nutrition, eating fruits, and taking supplements during pregnancy. This shows that overall model is statistically significant. The overall significance of the model can also be judged by the F-test. The F-value is 20.85 which is significant at less than one percent level of significance. This also suggests that the model is highly significant.

- Regression coefficient of 0.233 shows that education of the respondents had highly significant and positive relationship with children's health status. It means educated parents' children had good health status. So, the hypothesis of "parents' education will influence children's health" is accepted.
- Regression coefficient of 0.109 shows that wife's education had significant and positive relationship with children's health status. It means mothers' education had positive impact on their children's health status. So, the hypothesis of "parents' education will influence children's health" is accepted.
- Regression coefficient of 0.112 shows that family structure had highly significant and negative relationship with children's health status. It means nuclear families' children had good health status as compared to joint or extended families' children. So the hypothesis of "family structure of parents will influence children's health" is accepted.
- Regression coefficient of 0.096 shows that income of the respondents had highly significant and positive relationship with children's health status. It means high income families' children had good health status as compared to low income families' children. So, the hypothesis of "economic status of parents will influence children's health" is accepted.
- Regression coefficient of 0.071 shows that number of living children of the respondents had highly significant and negative relationship with children's health status. It means if the respondents had more numbers of children then their children's health was badly affected. So, the hypothesis of "Higher the number of children lower will be health status" is accepted.
- Regression coefficient of 0.039 shows that there is a positive and in-significant relationship between take proper breakfast with children's health status. So, the hypothesis of "proper breakfast of the respondents will influence their children's health status" is rejected.
- Regression coefficient of 0.160 shows that there is a positive and highly significant relationship between eating vegetables in daily nutrition by the respondents and their children's health status. So, they hypothesis of "balance diet of the parents will influence children's health" is also confirmed.
- Regression coefficient of 0.221 shows that there is a positive and highly significant relationship between eating fruits by the respondents and their children's health status. It means, if the respondents were eating fruits daily then their children were also had good health. So, the hypothesis of "balance diet of the parents will influence children's health" is also confirmed.



- Regression coefficient of 0.182 shows that there is a positive and highly significant relationship between taking supplements by the mothers during pregnancy and their children's health status. It means, if the mothers were taking supplement during pregnancy then their children had also good health. So, the hypothesis of “balance diet of the parents will influence children's health” is also confirmed.

CONCLUSION

The present research revealed that number of predictors affect child mortality in the target population area. These predictors i.e. famine or drought, scarcity of food and safe drinking water, lack of medicine and unavailability of medical services in hospitals and unnecessary political involvement were directly and indirectly hit the health of under-five years old children and ended their lives. Moreover, low level education of parents, family structure (Joint and Extended family), low income, large number of children, improper nutrition of children, and lack of he balances in diet of the parents and children were the main etiologies of child mortality in District Tharparkar, Sindh.

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