Analysis of Factors Responsible for Child Mortality in Tanzania

Hamad Abdalla Ali
Department of Finance
Nanjing Audit University (NAU), and Pukou District, Nanjing-China

Abstract— Despite substantial progress taken to reduce child mortality, childhood mortality rates are still very high in developing countries. Efforts are concentrated at identifying cost-effective strategies as many international agencies have advocated for more resources to be directed to health sector. One way of doing this is to identify the importance of the environmental factors that affect child mortality. These were help in prioritizing the factors that need to be manipulated for effective health interventions in the face of competing scarce resources. This paper focused on the analysis of factors responsible for child mortality in Tanzania. It specifically examined how child mortality is related to the household's environment and economical. A Binary Logistic Regression was used to analyze the responsible factors of child mortality in Tanzania. The responsible factors that showed significant relationship with the dependent factor in binary regression analysis were age at birth and birth order on child mortality. Policies of government aimed at achieving the goal of reduce the child mortality, should be directed on improving the families planning and education level of mothers to achieve the goal.

Keywords: Mortality, rate, birth order, Age at birth and education level

I. INTRODUCTION

A. Background

Child mortality is an important indicator of children's well-being and health. The basic part of the Human Rights declaration of 1948 is the right to health (United Nations High Commissioner for Human Rights, 2008). Improvement in health is a moral duty for policy makers all over the world, at the international level as well as the nationwide and local level. Children are asset of a country so counted as the future human capital, and every child has a right to have better life.

The rate of child mortality, defined as the number of deaths among children under the age of five per 1000 live births, has generally been considered an acceptable indicator of the overall health status of a population and by extension one measure of the level of development a country has achieved. The child mortality rate can also be a gauge of the effectiveness of public policies on health within a country and the policies' ability to serve the marginalized population.

Overall levels of child mortality have declined considerably over the last century through world-wide improved results in socio-economic conditions especially improved general healthcare for mothers and children. However there are many countries whose under-five mortality rates are still alarmingly high, specifically in low-income or developing countries. In these developing countries, child mortality accounts for a relatively large proportion of the total mortality for a country as compared to high income countries, where child mortality accounts for only a small share of the total number of deaths. Several researchers have studied child mortality examining factors potentially causes and affecting or contributing to the rate of mortality within a country (Mrisho et al 2007,Manuela et al 2009, Bezant 2008,Shankwaya 2008, Magoma2010,Moore 2011).

Child mortality needs to be monitored when it comes to Tanzania, because Tanzania is among those countries whose ranking is very low in health. Tanzania ranks at 151 out of 188 on the Human Development Index (HDI) by the United Nations Development Programme (UNDP, 1990-2014), and particularly the health status of children in Tanzania is worse. The probability of child mortality in low income countries is approximately 18 times higher than child mortality in high income countries (WHO, 2011).

B. Statement of the Problems

The objective of the World Health Organization (2014) to reduce the risk associated with child mortality; every country is striving to reduce the under-5 mortality and achieving the MDG goal4. This works tend to emphasize on the factors responsible for child mortality rate in Tanzania. Despite the fact that, the establishment of institutions of safe child health initiative in the health sector, child mortality is still high in Tanzania and consequently ignoring the main aim of safe childhood initiative. The leading causes of infant mortality are birth asphyxia, pneumonia, term birth complications, neonatal infection, diarrhea, malaria, measles and malnutrition. Many factors contribute to child mortality, such as the mother's level of education, environmental conditions, and political and medical infrastructure. Improving sanitation, access to clean drinking water, toilet facilities and other public health measures on child health may vary depending on parental education this can help reduce high rates of mortality (Timaeeus and Lush, 1995).
Kabir, et al (2011) used data from Bangladesh Demographic and Health Survey (BDHS 2004) to identify the influencing factors thought to be causes of Early Child Mortality such as Mother's age at birth, Sex of the child, previous birth interval, Birth order, Number of living children, Place of residence, Region and Mother's educational level in Bangladesh, Logistic regression analysis was used.

According to previous research was done by Mturi and Curtis (1995) used data from 1991/92 TDHS to study the determinants of infant and child mortality and previous child mortality associated with increased risk of infant and child mortality while no significant effect of socioeconomic status.

In my research will use data from 2015/2016 TDHS to study again to know the cause of child mortality as a result of factors responsible for child mortality such as Mother's educational level, Mother's age at birth and Birth order, there are no significant effects on Child mortality or there are change.

All rights reserved by *www.ijsrd.com*

C. Objectives of the Study

This section presents the general objective and the specific objectives of the study:

1) The General Objective

The General objective is to analyze factors which influence child mortality in Tanzania.

2) The Specific objectives

1) To determine how much birth order numbers contribute to child mortality.
2) To determine how much mother's education levels contribute to child mortality
3) To determine how much Mother's age at birth contribute to child mortality

3) Research hypothesis

Based on the objectives above, the following hypothesis will be tested:

1) H_0: There is no effect of birth order, mother's education levels and Mother's age at birth on child mortality

H_1: There is effect of birth order, mother's education levels and Mother's age at birth on child mortality

2) H_0: There is no significant average difference between birth order, mother's education levels and Mother's age at birth on child mortality

H_1: There is significant average difference between birth orders, mother's education level sand Mother's age at birth on child mortality

D. Significance of the study

This study will help the government to know important of Education level of Mother is matter for Health care of child in Tanzania in order to prepare suitable planning that will be helpful to minimize the rate of child mortality.

The study will be helpful to families policy improves; the relative advantage of one birth order position over another may change. Also the Government through the factor of Birth order to clarify how the more specific mechanisms, by which social advantage or disadvantage within families arise, are connected to certain societal features. .

Finally, this study will be helpful on ongoing debate about the contradictions of which factor either mother education level, birth order or mother age at birth is contributing most in child mortality in Tanzania. Moreover the healthy centers and other stakeholders will be aware on the factor which is most risky to children.

II. LITERATURE REVIEW

A. Introduction:

This chapter review theories and literature related to factors responsible for mortality incidences in children below five years. It provides the Theoretical literature review, Empirical literature for the study and Summary of the Review and Perceived Knowledge Gap.

B. Theoretical Literature

There is general consensus in the literature that a household's socio-economic and environmental characteristics do have significant effects on under-5 mortality (Kombo, 2009).As observed in most studies, a household's income has a significant effect on the survival prospects of children. Higher mortality rates are experienced in low income household as opposed to their affluent counterparts (Rutstein 2005).

As concerns the demographic variables, the patterns of mortality by maternal age and birth order are typically U-shaped (Filmer and Pritchett 2010). Children born to both relatively old and young women have higher mortality rates than others; the interpretation of the effect of maternal age at birth on child mortality must be biological, i.e., it depends on reproductive maturity (Garde 2010). Moreover, first and higher order births also have higher mortality rates since the birth order reflects the components of the child's biological endowment (Schell et al 2007). As for the child's gender, it is widely believed that male mortality is higher due to biological disadvantages. Twins face a higher mortality risk (Fayehun, 2010).

On the household's environmental characteristics, safe source of drinking water supply has significantly negative effect on child mortality. The same holds true for those with sanitation, which in most cases is taken to be access to a flush toilet or a ventilated improved pit latrine. Differentials by urban/rural residence have commonly been observed, with urban areas having more advantages and therefore better child survival prospects.

According to the hypothesis of intra-household resource competition, first born children are more likely to capture vital resources such as food and care, thereby reducing their mortality risk (Vos et al., 2004). On the other hand, it has been found that first born children, who are more likely to be born to mothers at younger reproduction ages, experience higher mortality risk than children of a higher birth order. A number of studies indeed point to a U-shaped effect of birth order, with the probability of infant mortality declining after the first child and increasing again for children of birth order four and higher Titaley et al., 2008 and Uddin and Hossain, 2008). To account for this effect, we construct two dummies: one for first born children, and one for children with birth order 4 and higher.

The patterns of mortality by maternal age just like birth order, is typically U-shaped. Children born to both relatively old and young women have higher mortality rates than others; the interpretation of the effect of maternal age at birth on infant mortality must be biological, i.e., it depends on reproductive maturity. Young mothers are usually inexperienced in looking after the infant (Kibet, 2010). Children born of young mothers also tend to be underweight, malnourished and perhaps anemic, a combination of which increases the risk of diseases. Maternal age is considered a proxy for a host of factors including family size, educational level, modernity, knowledge and practice related to childcare and energy or capacity to care for a child (Mock et al. 1993).

Mother's education has frequently been used as a proxy indicator of socio-economic status in international surveys and studies. However, mother's education is also thought to be associated with hygiene, care seeking, and treatment of illness behaviors pertaining to early childhood morbidities (Stalling 2004).

According to Bello (2002) well-educated mothers may be unable to reduce risk of exposure due to factors beyond their control, such as a contaminated community

All rights reserved by *www.ijsrd.com*

environment, or lack of water. However, their knowledge and wealth may allow them to use healthcare services more effectively than uneducated women (Root 2001). Furthermore, Mother‘s education and birth order were found to have substantial impact on child mortality in Ethiopia. The study concluded that an increase in Mothers ‘education and improved health care services are significant in reducing child mortality in Ethiopia. This was also found to be causing infant and child mortality across African sub-Sahara.

Baker (1999) applied the Brass indirect estimation of the level of child mortality by using the data that was gathered by the Malawi Diffusion and Ideological change project (1998) from the three administrative region of Malawi: the North, Canter and South to examine the pattern of regional variation of child mortality and selected maternal, socioeconomic and environmental factors. He found that the significant variation of child mortality between North and Canter, between North and South but not between South and Canter. Educational variations between those regions contribute for this regional variation of infant and child mortality. However, education is associated with high child mortality variation if health service not readily available.

Other study in Kenya by Hill (2000) found that mother’s educational levels have a significant impact on infant and child mortality while urban areas are associated with high risk of child mortality than rural areas. However, controlling for HIV prevalence child mortality is lower in urban areas (Hill et al 2000) generally; child mortality in urban areas is lower than in rural areas.

Household levels factors consider income/wealth/ effect on child survival that a variety of goods, services and assets influence child survival through operating the intermediate factors of child survival (Mosley and Chen, 1984). Similarly, community level factors also includes ecological setting (climate, soil, rainfall, temperature, altitude, and seasonality):- these variables particularly in rural society influence child and infant mortality and these variables can influence on the income generating work, use of medical facilities and the time of mothers for child care), political economy (infrastructure, political institution and health system variables) and availability of health service are crucial determinates for child survival (Mosley and Chen, 1984). In Ethiopia these difference resulting urban/rural differences in the infant and child mortality.

C. Empirical Literature

Under-five mortality remains a major public health problem, levels have dropped worldwide, from 12.0 million under-five deaths in 1990 to 6.9 million in 2011, of which 3.0 million Were neonatal deaths, 2.0 million post-neonatal deaths, and 1.9 million deaths among children age 1–4 (UNICEF et al. 2012). In Afghanistan, levels of under-five mortality have decreased, from an estimated 287 deaths per 1,000 live births in 1970 to 121 deaths per 1,000 live births in 2010 (Rajaratnam et al. 2010). The Afghanistan Mortality Survey 2010 (AMS 2010) indicates that the under-five mortality rate is 97 deaths per 1,000 live births, the child mortality rate is 23, and the infant mortality rate is 76 deaths per 1,000 live births (Afghan Public Health Institute et al. 2011). This is the first study that uses Gaussian process regression to estimate child mortality, and this technique has better out-of-sample predictive validity than do previous methods and captures uncertainty caused by sampling and non-sampling error across data types.

Somoza (1980) in a study on child mortality in Columbia showed that the level of infant and child mortality is determined by age of mother, sex of the child, urban and rural residence and education of the mother. Age of the mother showed the expected U-shaped relationship with child mortality especially for infants. The study also showed that children from multiple births are more than four times more likely to die during infancy and substantially more likely to die at older ages.

According to Caldwell (1979) analysis found that infant and child mortality are highly associated mother’s education that increases the awareness of how to care her children before birth and after birth and enables her to change feeding and child care practices by shaping and modifying the traditional familial relationships. Education plays an important role to improve knowledge of medical and health care, particularly mother’s education enhance to improve more effective preventative and health care practice, this increase her productivity and influence infant and child mortality.

The mother’s level of education is strongly linked to child survival. Higher levels of educational attainment are generally associated with lower mortality rates, since education exposes mothers to information about better nutrition, use of contraceptives to space births, and knowledge about childhood illnesses and treatment (Kamal 2012). Larger differences have been found to exist between the mortality of children of women who have attained secondary education and above and those with primary level of education or less (Woldemicael, 2001).

Accordingly, Abimbola and Akanni, (2012), this study examined the determinants of child mortality in rural Nigeria employing the 2008 Nigeria Demographic and Health Survey (NDHS) data. Data were analyzed using Descriptive Statistics and the legit regression model. The result of analysis showed that while the average age of the respondents at first birth is 19 years, more than half of them had no formal education and about three-fifths had less than 24 months birth interval. Secondary and higher education of mother, age of mother at first birth, place of delivery, type of birth, child ever breastfed, sex of child, were among the significant factors influencing child mortality in rural Nigeria.

Mustafa and Odimegwu (2008) in their study in Kenya, using also 2003 DHS data set for children by using logistic regression models. They examined socioeconomic determinants of infant mortality rate both urban and rural setting. They found similar result like in the case of Tanzania above that regional variation exists in infant and child mortality between the different provinces of Kenya. Most of the socioeconomic factors are not associated with the risk of infant and child mortality while children born in the richest household has lower probability of infant mortality relative to children born in the poorest households. However ethnicity and breast feeding in both urban and rural areas have a significant influence on infant mortality

All rights reserved by *www.ijsrd.com*

and sex of the child in urban areas and birth order and birth interval in rural areas are important determinants for the risk of infant mortality

Goro (2007) used data from 1993, 1998, and 2003 DHS surveys in Ghana to examine the determinants of infant and child mortality in three northern regions by using multivariate logistic regression model found that education of mothers, birth order of child and marital status of mothers are significant determinants for infant mortality, while only mothers education have a significant impact for child mortality. Similarly, Twum-Baah et al (1994) indicated that children born to mothers with higher educational level associated with lower risk of infant and child mortality as compared to children born to mothers with primary education level or non-educated.

Mturi and Curtis (1995) used data from 1991/92 Demographic and Health Survey in Tanzania to study the determinants of infant and child mortality by using hazard model found that short birth interval, adolescent pregnancy and previous child mortality associated with increased risk of infant and child mortality while no significant effect of socioeconomic status (i.e. maternal education, partner's education, urban/rural residence and presence of radio in the household) of the population on infant and child mortality. They conclude that demographic and biological factors such as short birth interval (less than 2 years), teenage pregnancies (<20 years) and previous child death were all have an impact on infant and child mortality and socioeconomic mortality differential are not significant (Mturi and Curtis, 1995).

D. Summary of the Review and Perceived Knowledge Gap

The empirical and theoretical literature provides evidence that child mortality is the chronic problem that faces many of developing countries. Some literatures insist that socioeconomic factors are not associated with the risk of infant and child mortality while children born in the richest household has lower probability of infant mortality relative to children born in the poorest households. However ethnicity and breast feeding in both urban and rural areas have a significant influence on infant mortality and sex of the child in urban areas and birth order and birth interval in rural areas are important determinants for the risk of infant mortality.

Other literatures believe with facts that level of infant and child mortality is determined by age of mother, sex of the child, urban and rural residence and education of the mother that increases the awareness of how to care her children before birth and after birth and enables her to change feeding and child care practices by shaping and modifying the traditional familial relationships.

Since the factors that are contributing to child mortality is dynamic from one country to another or one geographic area to another, there is a need to study factors responsible for Child Mortality in Tanzania, so as to be aware of these factors and to overcome them. Also there few literature that study about the degree responsible for each factor contributing to child mortality in Tanzania, so there is a need to study for how much each factor contributes to child mortality.

III. METHODOLOGY

A. Introduction

Research methodology is referring to as a systematic way to solve a problem. It is a science of studying how research is to be carried out. Essentially, the procedures by which researchers go about their work of describing, explaining, predicting phenomena are called research methodology. It is also defined as method by which knowledge is gained. Its aim is to give the work plan of the research (Rajasekaret el, 2013).

This chapter presents a description of the area of the study, population of the study, data collection methods, and study variables and data analysis to be used in the study so as to yield the necessary conclusions

B. Area of the Study

The study will cover the area of United Republic of Tanzania where is located in Eastern Africa. Tanzania has an estimated population of 44,928,923 according to 2012 population and housing census (PHC) and the total land area is 947,303 square kilometers (Sq. Km).

C. Population of Study

According to Polit and Hungler (1999:37) defines that population in the research context as an aggregate or totality of all the objects, subjects or members that conforms to a set of specifications. Study population is a group of individuals, objects or items from which samples are taken for measurement. The population of this study interest in Tanzania and TDHS is a nationally representative survey of 10,300 households selected from 475 sample points throughout Tanzania. All women age 15-49 in these households and all men age 15-49 in a subsample of one-third of the households were individually interviewed. The sample designs to produce separate estimates on key indicators for the national level, for urban and rural areas, and for seven zones.

D. Data Sources

In this study the source of data is secondary data obtained from National Bureau of Statistics (NBS). The study will use data from 2015-2016 Tanzania Demographic and Health Survey (2015-2016 TDHS)with four variables; Child Mortality, birth order, mother's education levels and Mother's age at birth variables.

E. Study Variables

This section describes the dependent variable such as Child Mortality under five and the independent variables such as Mother's age at birth, Sex of the child, previous birth interval, Birth order, Number of living children.

1) Dependent variables

Child mortality is measured using the under-five mortality rate (U5MORT). This variable is defined as the probability per one thousand live births that one newborn baby will die before reaching the age of five. The formula used to calculate child mortality rate is;

$$\text{CMR} = \frac{\text{Deathsofchildren}(1-5)\text{years}}{\text{Childrenaged}(1-5)\text{years}} \times 1000$$

All rights reserved by www.ijsrd.com

2) Independent variable

According to Kabir et al(2011 from Bangladesh .The set of independent variables are: (i) Mother's age at birth, (ii) Sex of the child, (iii) Previous birth interval, (iv) Birth order, (v) Number of living children, (vi) Place of residence, (vii) Region, (viii) Mother's educational level, (ix) Sources of drinking water, (x) Access to safe sanitation and (xi) Habit of reading newspapers or magazine and. In this section I will discuss few of these influenced factors used for the analysis.

3) Mother's age at birth

This is the exact age of the mother at the birth of the index child. This is computed as the difference of the maternal date of birth which was adjusted for the missing dates and the imputed dates of child birth. The variable makes use of a number of age categories including; <20 years, 20-34 years and 35+ years. The risk of a child dying varies by the age of the mother at birth with very young mothers (<20 years) and old mothers (35+ years) being associated with an increased risk of under-5 mortality experience. Change of mother's age at birth during the study is partly related to the change in child mortality trend.

4) Mother's education levels

This variable refers to the highest level of education that mother has attained. Some authors argue that mother's education factors may have a greater effect on infections mortality than on morbidity (Root 2001).Many studies have shown a negative and significant relationship between level of education as well as family income and infections morbidity; being significantly lower among children of more educated mothers (secondary or higher) than among children of mothers with no or primary education (Woldemiceal, 2001). It is expected that parents with no education will experience higher risks of under-5 mortality as compared to those with secondary schooling and above.

Mother's educations are expected to affect child survival in many ways. Wealth is expected to influence whether or not the family can adequately provide for the child, while mother's education is expected to influence the quality of the child's care. Counter intuitively, Das Gupta (1990) shows that mortality raises with the education of the mother in South Asia; however, Basu and Stephenson (2005) argue that the counterintuitive effect is more nuanced. By examining the relationship between mother's education and various proximate determinants of child mortality Mosley and Chen (1984), Basu and Stephenson show that most proximate determinants improve with mother's education, with the exception of birth interval, first age at birth, parity, or whether or not treatment is sought for various maternal and childhood illnesses

5) Birth order

This variable refers to the length in months of the preceding birth before the index child. Three categories will be used including <24 months; 25-47 months; 48+ months. A shorter birth order is associated with a heightened risk of under-5 mortality and vice versa. Birth intervals will however be expected to change over the entire period of study. Many studies have shown that child mortality is influenced by factor such as birth order, sex of the child, preceding birth interval among others (Abimbola and Akanni, 2012).

Birth order related to birth spacing which is another important factor. In particular, birth spacing in excess of 24 months (Cleland & Sathar, 1984; Griffiths et al., 2001) has been recommended due to reduced ability of the mother to transfer nutrients to the unborn child (Madise et al., 2003). A similar reduced ability to transfer nutrients is also likely to arise in the gestation of twins, as well as for very young mothers. Additional nutrition factors, such as breastfeeding, also matter (Rutstein, 2000), as it provides the critical nutrients and antibodies to infants and lowers exposure to potentially contaminated food.

F. Data Analysis

This section describes the binary regression analysis that used to determine the relationship between dependent variable and independent variables.

1) Chi-square Test

The Chi Square test at 5 percent level of significance will used to examine the relationship between the dependent variable and independent variables. After identifying significant relationships between the variables, a binary logistic regression will perform to assess the effect of independent variables on the dependent variable. Only those independent variables that show significant relationships at 5 per cent level with the dependent variables that considered in the binary regression analysis.

Test Statistics for Independence (Chi- square (χ^2))

$$X^2 = \sum_{i=1}^{r}\sum_{j=1}^{c} \frac{(O_{i,j} - E_{i,j})^2}{E_{i,j}}.$$

Where

$O_{i,j}$= observed frequency for contingency table category in row iand column j

$E_{i,j}$ = expected frequency for contingency category in irow and column j based on the assumption of independence.

With r rows and c columns in the contingency table, the test statistic has a Chi-square distribution with (r-1) (c-1) degrees of freedom provided that the expected frequencies are five or more for all categories.

2) Binary logistic Regression

The binary logistic model (binary regression model) is used to test the relative importance of predictors (independent variables) on dichotomous dependent (Tonidandel & Lebreton, 2010).

The Binary Logistic Model is:

$$\log it(\prod) = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \cdots \ldots \ldots \ldots \ldots \ldots + \beta_i X_{i\ldots\ldots} \quad (1)$$

Where

$$\log it(\pi) = \log\left(\frac{\pi}{1-\pi}\right)$$

- π is the probability of an event happening(Child Mortality)
- β_0 = The Child Mortality intercept or number of child mortality when B_1, $B_2$and $B_3$are equal to zero
- X_1= the 1st independent variable (birth order)
- X_2 = the 2nd independent variable (Mother's education levels)
- X_3= the 3rd independent variable (Mother's age at birth)

All rights reserved by *www.ijsrd.com*

- β_1, β_2 and β_3= the regression coefficients of the independent variables
- ε = error term
- When x_1, x_2 and x_3 are increasing by1 unit, then dependent variable (child mortality (π)) will be increasing by additional of β_1, β_2 and β_3.

ACKNOWLEDGEMENT

It is my sincerest and heartfelt gratitude to thank God for guiding and giving me strength to complete my research. He had been my innermost strength in every effort I make to improve my research work.

Many thanks go to my family who had been encouraging me to study hard whenever I am at college. They play the biggest role in every success I achieve in my study, and this research is my dedication to them.

Accomplishment of this work has been a result of cooperation and support from several people. I therefore wish to thank Mrs. Zainab Hassan, my supervisor for his encouragement, critical comments and challenges that helped to shape this special project. Special thanks go to my friends who assisted the analysis part of this research.

I wish to thank the members of National bureau of Statistics specifically the department of social and demographic statistics for the provision of data relevant to this study. Also I would like to extend my sincere gratitude to all my classmates at the Eastern Africa Statistical Training Centre for the company and support they gave me throughout the course of my studies. Furthermore, I also wish to thank each and every person who participated in one way or another in fulfillment of this study.

Lastly I wish to declare that any shortcomings that remain in this study are my own responsibility

REFERENCES

[1] Baker, R. (1999). Differential in child mortality in Malawi. Social networks project working Papers, No. 3.University of Pennsylvania.
[2] Basu, A. M., &Stephenson, R. (2005). Low levels of maternal education and the proximate determinants of childhood mortality: a little learning is not a dangerous thing. SocSci Med, 60(9), 2011-2023.
[3] Cleland, J. G., &Sathar, Z. A. (1984).The Effect of Birth Spacing on Childhood Mortality in Pakistan.Population Studies, 38(3), 401-418.
[4] Das Gupta, M. (1990).Death Clustering, Mothers' Education and the Determinants of Child Mortality in Rural Punjab, India.Popul Stud (Camb), 44(3), 489-505.
[5] Fayehun, O. A. 2010. Household Environmental Hazards and Child Survival in Sub-Saharan Africa. DHS Working Papers. Calverton, Maryland, USA: ICF Macro.
[6] Filmer D and Pritchett, L. 2010. Child Mortality and Public Spending on Health: How Much Does Money Matter? Policy Research Working Paper No. 1864. The World Bank Washington D.C;
[7] Garde, M. 2010. Inequalities in Child Survival.Looks at wealth and other socio-economic disparities in developing countries. Save the Children, UK
[8] Goro, M. (2007). The stalling child mortality: the case of three northern regions. The 5th conference of union for Africa population, Tanzania.
[9] Kamal Hussain (2012): Socio-economic and Demographic correlates of Infant and Child mortality; a case of slum areas in Rajshahi district of Bangladesh, Rajshahi Department of Population Science and Human Resource Development, Bangladesh.
[10] Kamal, S. M. M. 2012.Maternal Education as a Determinant of Neonatal Mortality in Bangladesh Journal of Health Management, 14: 269-281
[11] Kibet, M. 2010. Comparative study of infant and child mortality: The case of Kenya and South Africa. Journal of African Population Studies Vol 24, 1.
[12] Kombo J. and J. K. VanGinneken 2009. Determinants of infant and child mortality in Zimbabwe: Results of multivariate hazard analysis, Demographic Research 21(13), Pages
[13] M.A. Kabir, AbulQuasem Al-Amin, GaziMahabubulAlam and M.A. Matin, 2011. Early Childhood Mortality and Affecting Factors in Developing Countries: An Experience from Bangladesh. International Journal of Pharmacology, 7: 790-796
[14] Mock, N., T. Sellers, A. Abdoh and R Franklin. 1993. Socioeconomic, Environment Demographic and Behavioral Factors Associated with the Occurrence of Diarrhea in Young Children in the Republic of Congo. Social Science and Medicine 167: 36-42.
[15] Mosley W, H & Chen L, C. 1984."An analytical framework for the study of child survival in developing countries," Population and Development Review, 10(Supplement): 25-45.
[16] Mrisho, M, Schellenberg, J.A, Mushi, A.K, Obrist, B., Mshinda, H., Tanner, M., and Schellenberg, D., (2007). Factors affecting home delivery in rural Tanzania
[17] Mturi, A. J. and Curtis, L. S. (1995).The determinants of infant and child mortality in Tanzania. Health policy plan 10:384-94.
[18] Mustafa, E. &Odimegwu, C. (2008). Socioeconomic determinants of infant mortality in Kenya: Analysis of Kenya DHS 2003.
[19] Polit, D.F., Hungler, B.P. (1999). Nursing Research: Principles and Methods (6th edn). Philadelphia: J.B. Lippincott
[20] Rajaratnam, J.K., J.R. Marcus, A.D. Flaxman, H. Wang, A. Levin-Rector, L. Dwyer, M. Costa, A.D. Lopez, and C.J. Murray. 2010. "Neonatal, Post-Neonatal, Childhood, and Under-5 Mortality for 187 Countries, 1970—2010: A Systematic Analysis of Progress towards Millennium Development Goal 4." Lancet 375: 1988–2008.
[21] Rajasekar, S., Philominathanet, P. &Chinnathambi, V. (2013).Research methodology.Physicsed-ph. 14.1-53.
[22] Rutstein, S.O. 2005. Effects of preceding birth intervals on neonatal, infant and under five years' mortality and nutritional status in developing countries: evidence from the demographic and health surveys. International Journal of gynecology and Obstetrics. 89:S7-S24.
[23] Somoza, J.L. 1980. Illustrative analysis: infant and child mortality in Colombia. World Fertility Survey

All rights reserved by *www.ijsrd.com*

Scientific Reports .No. 10. London: World Fertility Survey.
[24] Stallings, R. Y. 2004. Child Morbidity and Treatment Patterns.DHS Comparative Reports Calverton, Maryland: ORC Macro.
[25] Success Factors for Women's and Children's Health [Internet]. Geneva: World Health Organization; L 2014. from:http://www.who.int/pmnch/knowledge/publications/successfactors/en
[26] Tonidaniel, S & Lebreton, J.M. (2010). Determinants of Relative Importance of Predictors in Logistic Regression. Organizational Research Methods, vol 13, 767-781.
[27] Tripathi, P. (2003). ResearchMethodology. New Delhi: Sultan Chand and Sons.
[28] Twum – Baah et al. (1994). A study of infant, child and maternal mortality in Ghana.Ghana statistical service in collaboration with Ministry of Health and UNICEF, Accra, Ghana 24-32.
[29] Uddin, Jamal, and ZakirHossain (2008): Predictors of Infant Mortality in a Developing Country. Asian Journal of Epidemiology 1(1):1-16.
[30] UNICEF, WorldHealth Organization, World Bank, and United Nations. 2012. Levels and Trends in Child Mortality: Report 2012. New York, NY, USA: United Nations Children's Fund.
[31] United Nations High Commissioner for Human Rights, (2008)
[32] Woldemicael, G. 2001. Diarrhoeal morbidity among young children in Eritrea.Health Population and Nutrition, 2, 83-90.

All rights reserved by *www.ijsrd.com*