THE NFHS-3 DATA ON INFANT AND CHILD MORTALITY IN MEGHALAYA :
(RESULTS OF LIFE TABLE AND MULTIVARIATE HAZARD ANALYSIS)

(Dr. Phrangstone Khongji, Asstt Professor in Statistics,
Department of Basic Sciences and Social Sciences,
North Eastern Hill University
Shillong 793022, Meghalaya, India.
Email. phrang2000@yahoo.com)

ABSTRACT

This article examines the relevance of some of the sociocultural and demographic factors in explaining child mortality in the state of Meghalaya using data from NFHS 3. Life table techniques is utilized for the purpose of evaluation the various child mortality indices whereas hazard model is incorporated for the determining the statistical significance of the various charactersistics considered in the study. The present studies shows that rural residence, mother's educational status, mother's working status, the standard of living- all these variables are associated with high infant and child mortality. Also, in general, demographic characteristics have consistent and substantial effects on mortality before age five. The present study reveals that the relative risk of dying the first five years decreases with the increase in the preceding birth interval. Young mothers and those with short interval births also are at higher risk of child death.

Keywords: Neonatal Mortality, Infant mortality, Underfive mortality, life table, Kapler-Meier method, Cox Proportional hazard model

Introduction

Reducing mortality and improving the health of young children has long been a concern of the international community. One of the eight Millennium Development Goals (MDGs) adopted after the Millennium Summit in 2000 is to reduce child mortality (MDG4). Donors and development agencies, the United Nations and national governments around the world committed themselves to the goal of reducing the under five mortality rate by two-thirds between 1990 and 2015 (UN Millennium Declaration). Two of the key indicators for monitoring progress towards this goal are the under-five mortality rate (U5MR) and the infant mortality rate (IMR) (UN Development Group, 2003). Country estimates of the level and trends in infant and under-five mortality are needed to help set priorities, shape policies, design programmes and monitor progress towards the MDG at the national and sub national level. These estimates are also needed at every levels to inform funding decisions for activities directed towards reducing child mortality. Child mortality is a key indicator not only of child health and nutrition but also of the implementation of child survival interventions and, more broadly, of social and economic development. As global momentum and investment for accelerating child survival grow, monitoring progress at the global and country levels has become even more critical.

Infant and child mortality depends upon a large number of factors such as socio-economic, demographic and environmental factors and these vary across population. These aspects of determinants of infant and child mortality are over studied but the fact remains that findings varies across population. The covariates, which explain child mortality in one population, may not have bearing in other population. However, much of what we know about the correlates of child mortality in India may not apply to all communities. Therefore, this paper tries to measure covariates of child mortality that are relevant to the specific circumstances of the state of Meghalaya.

In terms of infrastructure facilities, economic development and accessibility, Meghalaya lack behind many states of the country regarding infrastructure facilities, economic development and accessibility. However, the state is socially advanced in terms of literacy, women empowerment, women autonomy, and exposure to mass media. NFHS 2 shows highest

IMR of 122 in Meghalaya and this figure has come down dramatically come down to 45 in the NFHS 3. However, not much is clear as regards to the the state about the association between maternal background, birth spacing, residence background etc. and child mortality. This is because of lack of studies exploring such association. Consequently, there is a need to investigate more closely the determinants of child mortality in the matrilineal state of Meghalaya. This paper provides information on levels and differentials in neonatal, post neonatal, infant, child, and under-five mortality in the state of Meghalaya. These mortality rates are relevant to a demographic assessment of the population and are important measure of a country's of state's level of socioeconomic development and quality of life. They can also be used for monitoring and evaluating population and health programmes.

Review of Literature

Using results from 39th World Fertility Survey, Hobcraft, McDonald and Rustein (1985) highlights that child spacing is clearly associated with infant and child mortality, while high orders and high ages of mothers at birth show little such association. Palloni and Millman(1986) investigated the sensitivity of different estimation on procedures in analyzing the influence of inter birth intervals and breastfeeding on infant and early childhood of mortality. The concept and aspect of death clustering in child mortality among women in socio-economic and educationally less advance women have been highlighted in the Khanna study in rural Punjab by Das Gupta (1990). Ladusingh and Holendro Singh(2006) examines the relevance of socio-cultural and environmental factors in explaining child mortality in Northeast India by using data from the Indian National Family Health Survey 2. They provide evidence that lack of hygiene in the household and poor women's engagement in physically demanding agriculture based work contributes to higher risk of child mortality. The authors also shows that unlike in other parts of India, female children have an edge over boys in childhood survival and living with paternal grandmother tends to lower the risk of child death in the first five years of life. According to the authors community education is found as the dominant factor outside the household to have a significant effect on child mortality. Joshua and Ginneken J. K.V(2009) shows that births of order 6+ with a short preceding interval had the highest risk of infant mortality and that the infant mortality risk associated with multiple births was 2.08 times higher relative to singleton births ($p<0.001$). They also reveals that socioeconomic variables did not have a distinct impact

on infant mortality and concluded that determinants of child mortality were different in relative importance from those of infant mortality. Among the methodological papers, which consider mortality experience of children with respect of survival times are those of Guo and Rodriguez (1992), Sastry (1997) and Chan(2004) .

Methodology

The data for the present study is obtained from the 2005-06 National Family Health Survey (NFHS-3) was conducted under the stewardship of the Ministry of Health and Family Welfare (MOHFW), Government of India who designated International Institute for Population Sciences (IIPS), Mumbai, as the nodal agency for the survey. In Meghalaya, NFHS-3 is based on a sample of 1,900 households that is representative at the state level and within the state at the urban and rural levels. The survey interviewed 2,124 women age 15-49 from all the sample households and 720 men age 15-54 from a subsample of households to obtain information on population, health, and nutrition in the state. The household response rate in the state as a whole was 98 percent and the individual response rates were 90 percent for eligible women and 78 percent for eligible men. All women surveyed by the NFHS were asked to provide a complete birth history, including sex, date of birth, and survival status for each live birth. A total of 1108 single live births were recorded in the survey. 56 of these were followed by deaths before the fifth birthday. Table 1 provides a picture distribution of children born in the five years period preceding the NFHS-3 by survival status and a few background characteristics. Firstly, a univariate analysis of infant and child mortality rates by different background characteristics of mother and child were made. The mortality measures used are:

Neonatal mortality :	the probability of dying during the first month of life.
Post neonatal mortality :	the probability of dying after the first month of life but before the first birthday.
Infant mortality ($_1q_0$) :	the probability of dying before 12 months of age.
Child mortality ($_4q_1$) :	the probability of dying between exact ages 1 and 5 years.
Under-five mortality ($_5q_0$) :	the probability of dying before five years of age.

The mortality estimates are not rates, but are true probabilities, calculated according to the *conventional life table approach*. For any calendar period, deaths and exposure in that period are first tabulated for the age intervals 0, 1-2, 3-5, 6-11, 12-23, 24-35, 36-47 and 48-59 months. Then age-interval-specific probabilities of survival are calculated, denoted as q_i. Finally, probabilities of death over larger age intervals are calculated by multiplying the relevant age-interval survival probabilities together and subtracting the product from one (Rutstein, 1984):

$$ {}_n q_x = 1 - \prod_i (1 - q_i) $$

The levels in infant and child mortality rates were derived directly from the maternity history data. The mortality estimates by socio-economic and demographic characteristics were made for 5 years period preceding the survey.

Survival analysis is carried out in terms of probability of surviving beyond a specific duration of time (age in months) and instantaneous risks of death. These two measures are respectively referred to as survival function and hazard rate. For studying differential in child mortality, Kaplan – Meier method, captures survival functions and survival curves are sketched graphically to get clear visual depiction of differential. To control confounding background factors in the investigation of determinants of child mortality, Cox proportional hazard model (Cox, 1972) is adopted. Survival variable (time) required for survival analysis is taken as the survival age of children in months and it is uncensored in the case of event of death of child under 59 months, while it is treated as censored cases for children surviving beyond five years. The dependent variable of the hazard model in the multivariate analysis is a measure of the force of mortality for an individual i, in the age interval t and is given by $\lambda_i(t)$. The hazard in the age interval t, which can be interpreted as the probability of dying between t and delta-t, given that the child has survived at the beginning of the age interval, is assumed to have the following functional form.

$$ \ln[\lambda_i(t)] = \alpha(t) + x_i(t)\beta(t), $$

where $\lambda_i(t)$, is the risk of dying in age interval t for child i

$\exp[\alpha(t)]$ is the underlying age specific risk of dying

$x_i(t)$ is a vector of characteristics for individual i and

$\beta(t)$ is the set of associated co-efficients

Estimates of the coefficients $\beta(t)$, when exponentiated, can be interpreted as the risk associated with a set of characteristics $x_i(t)$, related to an omitted reference category. Coefficients are estimated using maximum likelihood methods and Z- statistics (the estimated coefficient divided by the standard error) is used to assess whether an effect is statistically significant.

The multivariate Proportional Hazards Regression Model is utilized in order to statistically determine importance of various maternal, socioeconomic and demographic variables on infant and child mortality in Meghalaya state between 2000 and 2005

Discussion

This paper examines infant and child mortality and their determinants for Meghalaya state, using data from the National Family Health Survey(2005–06). Neonatal (first month), post neonatal (age 1–11 months), infant (first year), child (age 1–4 years) and under five mortality(U5MR)mortality are estimated, as well as the effects of socioeconomic and demographic characteristics on childhood mortality using information from women's birth histories pertaining to children born during the 5-year period before the survey.

Socioeconomic Differentials

In this section, the author examine the levels neonatal, post neonatal, infant, child mortality and under five mortality(U5MR) by socioeconomic characteristics. Some of the social indicators selected for the study are mothers educational status, mothers working status, standard of living and place of residences. The mortality estimates are calculated according to the conventional life table approach.

Table 2 reveals that the infant mortality rate in rural areas is 33 whereas in urban areas it is 14. The rural-urban difference in mortality is particularly large for under five mortality, for which the rate in rural areas is almost thrice as high as the rate in urban areas. The data also shows that except for post neonatal and infant mortality periods where mortality in rural areas is about 50 percent higher than mortality in urban areas, in the other phases, the mortality in rural areas is about three times higher than mortality in urban areas. In the state of Meghalaya, living conditions are generally not good in rural areas and health-care facilities are less readily

available and tend to be of poorer quality. These differences can result in higher infant and child mortality in rural areas than in urban areas. In connection with the educational status of the mothers Table 2 depicts that infant and child mortality rates decrease with an increase in mother's educational status. Infant mortality rate is 20 for children whose mothers have no schooling, compared with 8 for children whose mothers have 5-7 years of primary schooling and *16 for children whose mothers have 12 or more years of secondary schooling*. Literate mothers usually give birth to healthier babies because they themselves tend to be healthier than mothers who are illiterate. In addition, literate mothers are more likely to provide their children with a healthy environment and nutritious food than are illiterate mothers, even when other conditions are similar. Lastly, literate mothers are likely to have more information about health-care facilities and to have more influence within the family in deciding to take sick children for treatment

In order to study the relationship of childhood mortality with the economic status, the household standard of living index is constructed. The household standard of living index (SLI) is ranked into low, medium and high and the ranking is based on the total scores assigned to certain consumer durables, housing conditions, ownership of agricultural land and livestock and other items in the household graded numerically in terms of their value or importance. Index scores ranged from 0-4 for low SLI to 15–24 for a medium SLI and 25–67 for a high SLI. The results from the study(Table 1)shows that infant mortality rate is 15 among children in households in the lowest standard of living(SLI), *20 in medium SLI households*, and only 9 in the highest SLI households. The ratio between the highest and lowest SLI in child mortality is lowest in the age interval 1-4 years(0:7) and highest in the neonatal phase(6:6). The general conclusion that can be made from the data is that, childhood mortality is inversely related to SLI. The data on the Table 1 also shows that working women are experiencing lesser incidence of childhood mortality compares to those who do not work. The data shows that except for Neo neonatal phase, where mortality to children of non working women is about 50 percent higher than mortality for working women , in the other phases, *the mortality to children of non working women is more than three times compare to those of working*.

Demographic Differentials.

In this section, the author estimate the effects of sex of the child, birth order, mother's age at childbirth and previous birth interval on neonatal, post neonatal, infant, and child mortality and under

five mortality. The dependent variable is a set of monthly probabilities of dying, which is a basis for calculating a complete life table.

Biological conditions affect mortality most strongly during the neonatal period, and parental care affects mortality most strongly during early childhood.In regions with strong son preference, we would expect somewhat higher male mortality than female mortality during the neonatal period and excess female mortality among children at older ages (Pandey *et al*.,1998). The table 2 shows that there is a huge differential in childhood mortality by sex in the state of Meghalaya. *The results from the survey data depics that, except for the neonatal phase where male mortality is 33% higher than female mortality, in the other phases, male mortality is more than 50% higher than female mortality*. Males are at the greatest disadvantage at post neonatal phases, when their risk of dying exceeds that of females by 65%. This excess in male mortality at every period of childhood ages in the state may be the result from daughter preference, which can lead to differential treatment of sons and daughters in terms of food allocation, prevention of diseases and accidents, and treatment of illness.

In India, the weight of babies is not measured at birth in most cases. Taking the reported size of the baby at birth as a proxy for birth weight, one finds that birth weight has a substantial effect on infant and child mortality rates. The result given in the table 2 depicts that from a broad perspective, childhood mortality is comparatively higher for average and small size babies. The result shows that the infant mortality rate is 17 for an average size baby, but it is 15 for a small baby and only 4 for a large baby. The risk of mortality is particularly high for small babies during the neonatal period where as that risk is high for average babies during the post neonatal period. Birth order can also be an important characteristic in determining childhood mortality. Usually the relationship between birth order and mortality at early ages takes a U shaped form where mortality is high for first-born children and births of very high orders and is low for births of order 2 or 3. Table 2 depicts that infant mortality is following U-shaped relationship with birth order in the state of Meghalaya, which is lowest for birth order 3 and higher for birth orders 1, 2 and 4 respectively. First-order births are more likely to have a difficult birth process than later births, thus increasing the risk of neonatal mortality. In addition, first-born children are likely to be raised by parents with limited skills and experience, possibly increasing the risk of infant and child mortality. Births of very high order may have mothers who are physically depleted at the time of conception and throughout pregnancy. They are thus more likely than other children to suffer from conditions associated with high mortality risk such as fetal growth retardation and low birth weight. High-order

births are also born into families that already have a number of young children who compete for resources and parental care. The effects of first order birth are likely to be strongest during the neonatal period, while the effects of high-order birth are likely to be strongest at older ages. In the present study the

Previous birth interval in general has significant effect on infant and child mortality where they provide a strong rationale for advocating child spacing to improve child survival. In the state of Meghalaya the NFHS 3 data presented in table 2 depicts that children have a better chance of survival when the preceding birth interval is increase. When compared to the preceding birth interval between 36 to 48 months, the infant mortality for the preceding birth interval of less than 24 months is 4 times higher and the same for preceding birth interval of 24 to 36 is almost twice times higher. Children born to mothers under 20 years old are likely to have elevated risks of mortality. Table 2 shows the effect of mother's age on first-born children. The results shows that first-born children born to mothers under age 20 experience much higher neonatal, postneonatal, infant, and child mortality than do first-born children born to older mothers.Very young mothers may experience difficult pregnancies and deliveries because of their physical immaturity. They are also likely to have limited knowledge and confidence in caring for infants and young children. Mothers age to first born is taken as a proxy to mothers age for every new born as these two variable are direcdly associated to one another i.e., the lesser the age of the mother to first born, the lesser will be the mothers age for every new born. In this connection, the researcher examines the effect of mother's age at childbirth for first-born children.

Correlates of Child Mortality

The child mortality differential by residence background, sex of the child, preceding birth interval, and survival status of preceding child are depicted by *Kaplan-Meier survival curves* shown in the figures 1 through 5. *Sex differential in the survival chance during childhood are pronounced, in which males are more likely to die compare to females at every stage of the 5 year period*. Working status of the mother is showing a slight differential in childhood mortality where children born to working mother mothers are having a better survival probability. Again, children born to mothers whose ages at first birth is less than 20 years are experiencing lesser survival chances, especially during the latter part of the 5 year childhood period. Again, considering the

preceding birth interval, children of first birth and children whose preceding birth is more than 24 months, are having better survival chances than those children whose preceding birth interval is either less than 24 months. This means that longer the birth interval, better is the survival during childhood Lastly, as expected children born as small size are having a significant lower survival chances compared to average and large sizes born babies. Kaplan-Meier survival curves are not giving a clear depiction to the association of childhood mortality with that of Women educational status, standard of living and Birth order.

To control confounding background factors in the investigation of childhood mortality Cox proportional model is utilized. The model is adopted for investigating the determinants in terms of Hazard ratios or relative risks (RR). And the result of the analysis is presented in table 3. The results show that there is prominent sex bias towards male children in the risk of dying during childhood, but this is statistically significant. With reference to female child, male children are more likely to die during childhood. The result also shows that rural children are twice as much expose to the risk of dying compare to their urban counterparts. Most of the results reported here follow this general pattern, but many results are not statistically significant because NFHS samples in urban areas tend to be small. The occupation status of women does play a role in determining the risk of dying during childhood. Compare to women who are working, non working women are more likely to experiencing loss of children during childhood. With the birth order of children there is indication of a direct relationship with the risks of dying during childhood, but this is found to be not significant. The table 3 shows that with an advancement in the age at delivery, the more is the child likely to experience risks of dying during childhood. With Women age at first birth, the table shows that there is an inverse relationship with the risks of dying during childhood. With reference to women below 20 years, the relative risks of children born to women which are more than 20 years of age is 33 per cent less likely to die during childhood. Now coming to the size of the child at birth in determining the risks of child mortality, it is noted from the results of the proportional hazard model, as the size increases there is also an enhancement in the chance of childhood survival. With reference to small size children, average and large size children are less likely to experience childhood mortality.

Summary and Discussion

The effects of socioeconomic characteristics on infant and child mortality, as estimated by hazard models, are consistent with findings based on period life tables that are given in the NFHS 3 evaluated in the present study except for the Women educational status. Rural residence, mother's educational status, mother's working status, the standard of living- all these variables are associated with high infant and child mortality when the author examine each variable one at a time. In other words, all of these variables have strong effects on infant and child mortality. Also, in general, demographic characteristics have consistent and substantial effects on mortality before age five. The present study reveals that it is evident that the relative risk of dying the first five years decreases with the increase in the preceding birth interval. This implies that a woman needs some minimum period to recover from physical and hormonal changes accompany with pregnancy. These findings suggest that under-five mortality can be reduced substantially by encouraging women to delay the onset of childbearing. Helping families stop having children after four births will also enhance the survival chances of children. As far as the sex of the child is concern, the differential in survival chance is very much pronounced whereby there is an excess male deaths.

It would be difficult to reduce infant and child mortality by changing socioeconomic characteristics such as mother's literacy or ownership of household goods in a short period of time. The findings in this section, however, can be used to identify the households most likely to experience high levels of infant and child mortality. Family health programmes should concentrate their efforts on such households. High-risk households include those belonging to a lower educational status, lower economic status identify by lower standard of livings and non working women. These results call for close examination of the customs practiced by different tribal communities in the state relating to childbirth and the care of newborns and young children. By considering the preceding child status, a child whose previous sibling is alive has less relative risk of dying during childhood. Finally, family health programmes should provide families that have experienced an infant or child death with intensified *maternal and child health support* to avoid further mortality. Such support should include basic antenatal care, guidance on home care of well babies, immunizations, and treatment of common childhood illnesses such as diarrhoea and respiratory infections.

References

Cox D. R. (1972): "Regression Models and Life Tables (with discussions)". *Journal of the Royal Statistical Society,* Ser. B, 34, 17-30.

Chan, Y.H (2004): Survival analysis, Singapore Med J, Vol 45(6) : 249

Das Gupta, M. (1990): "Death clustering, Mother's Education and the Determinants of Child Mortality in Rural Punjab, India". *Population Studies*, 44, 489-505.

Guo, G. and Rodriguez, G. (1992): "Estimating a Multivariate Proportional Hazards Model for Clustered Data Using the EM Algorithm". *Journal of the American Statistical Association*, 87, 969-976.

Hobcraft, J. N., Mc Donald, J. W. and Rutstein, S. O. (1995): "Demographic Determinants of Infant and Early Child Mortality: A Comparative Analysis". *Population Studies*, 39, 363-385.

Joshua K, J and K.V Ginneken (2009) Determinants of infant and child mortality in Zimbabwe: Results of multivariate hazard analysis, *Demographic Research*: Volume 21, Article 13

Laishram L and Singh, C, H (2006) Place, Community Education, Gender and Child Mortality in North-East India, *Popul. Space Place* 12, 65–76

National Family Health Survey India, 2005-2006. National report (2009), International Institute for Population Sciences (IIPS), Mumbai.

Palloni, A. and Millman, S. (1986): "Effects of Inter Birth Intervals and Breast feeding on infant and early Childhood Mortality". *Population Studies*, 40, 215-236.

Pandey,A, *et al*.,(1998): Infant and Child Mortality in India, National Family Health Survey Subject Reports, Number 11, International Institute for Population Sciences, Mumbai, India.

Rutstein S. O (1984) Infant and child mortality: Levels, trends and demographic differentials.Revised editions. WFS comparative studies No 43, Voorburg Netherlands, International Statistical Institute

Sastry, N. (1997): "A Nested Frailty Model for Survival Data, With an Application to the Study of Child Survival in Northeast Brazil". *Journal of the American Statistical Association*, 92, 426-435.

Table 1. Distribution of live births and deaths by background characteristics used in the analysis.

		Child Died	**Child Alive**
Place of Residence	Urban	15	311
	Rural	41	741
Working Status	Working	13	330
	Not Working	43	720
Highest Educational Level	No Education	28	391
	Primary	9	242
	Secondary	19	367
	Higher	0	52
Standard of Living	Low	20	374
	Medium	24	455
	High	9	188
Sex of the Child	Male	36	558
	Female	20	494
Size of the Child at birth	Large	4	168
	Average	19	352
	Small	20	226
Birth order	1	7	162
	2	10	227
	3	11	182
	4	16	156
	>4	17	325
Preceding Birth Interval	< =24 months	22	318
	25-36 months	11	271
	36-48 months	7	153
Mothers Age At first birth	<=20 years	36	589
	>20 years	20	463

Source:NFHS 3

Table 2. Life table estimates of Mortality in Meghalaya state(NFHS 3)

(Five years preceding the Survey)

		Neonatal mortality	Postneonatal mortality	Infant mortality	Child mortality	Under-5 mortality
	NFHS 3 INDIA*	39	18	57	18.4	74.3
	NFHS 3 MEGHLAYA	25	24	48	9	57
Place of Residence	Urban	7	7	14	1	15
	Rural	18	15	33	8	41
Working Status	Working	8	4	12	1	13
	Not Working	17	18	35	8	43
Highest Educational Level	No Education	10	10	20	8	28
	Primary	4	4	8	0	8
	Secondary	11	5	16	1	17
	Higher	NA	NA	NA	NA	NA
Standard of Living	Low	6	9	15	7	22
	Medium	10	10	20	2	22
	High	6	3	9	0	9
Current age of Women	15-24	8	2	10	3	13
	25-34	8	16	24	6	30
	35-44	6	4	10	1	11
Sex of the Child	Male	15	17	32	6	38
	Female	10	6	16	3	19
Size of the Child at birth	Large	4	0	4	0	4
	Average	4	13	17	2	19
	Small	8	7	15	3	18
Birth order	1	8	3	11	1	12
	2	6	5	11	1	12
	3	3	2	5	1	8
	4	3	9	12	2	14
Preceding Birth Interval	< =24 months	8	8	16	5	21
	25-36 months	4	3	7	1	8
	36-48 months	1	3	4	1	5
Mothers age at first birth	<=20 years	11	13	24	9	33
	>20 years	9	5	14	1	15

Source:NFHS 3 , * NFHS 3 Report

Table 3. Estimated Relative Risk(RR) of dying in the first five years of Life (Cox Regression Hazard Model)

Variable		**Coefficient (β)**	**Hazard ratios/ Relative Risk Exp(β)**
Place of Residence	Urban®	**0.461**	**1.585**
	Rural	-	-
Working Status	Not Working®	**0.365**	**1.441**
	Working	-	-
Standard of Living	Low	**.427**	**1.533**
	Medium	**-0.490**	**0.612**
	High®	-	-
Sex of the Child	Male®	**2.216***	**9.170**
	Female	-	-
Preceeding Birth Interval	< 24 months	**.868**	**2.381**
	25-36 months	**.301****	**1.352**
	37-48 months®	-	-
Birth Order	1	**1.002**	**2.724**
	2	**1.459**	**4.300**
	3	**1.950***	**7.031**
	4®	-	-
Mothers age at first birth	Less than 20 years	-	-
	More than 20 years®	**-.330**	**0.719**
Size of the Child at BIrth	Large	**-10.223**	**0.000**
	Average	**-1.105***	**0.331**
	Small®	-	-

R: Reference category , * $p \leq 0.05$, ** $p \leq 0.10$

Figure 1: Kaplan-Meier Survival Curves Classified by Sex of Child

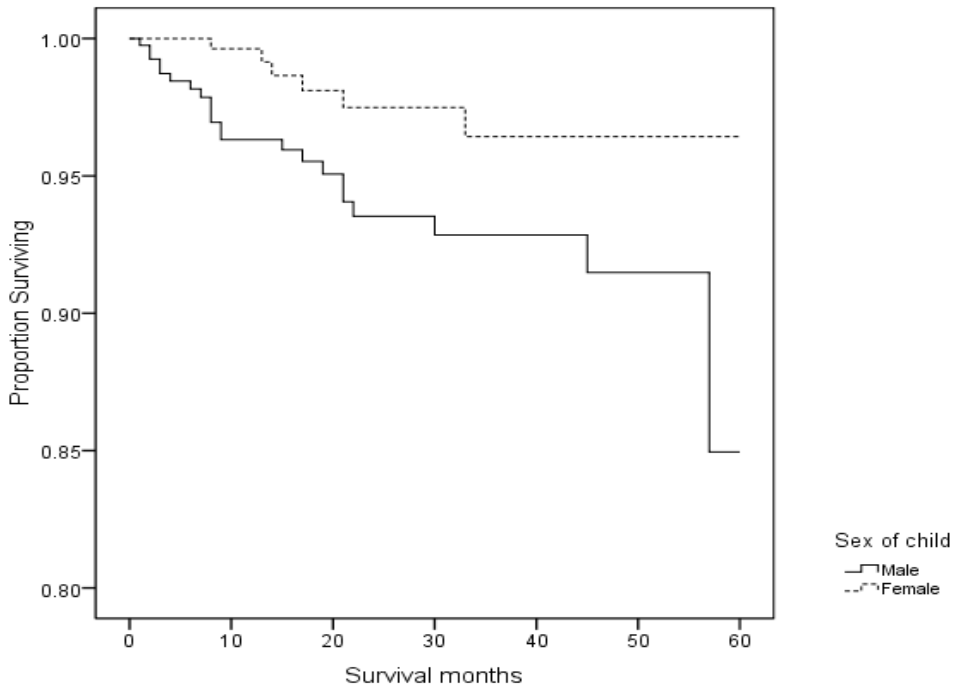

Figure 2: Kaplan-Meier Survival Curves Classified by Mother's working Status

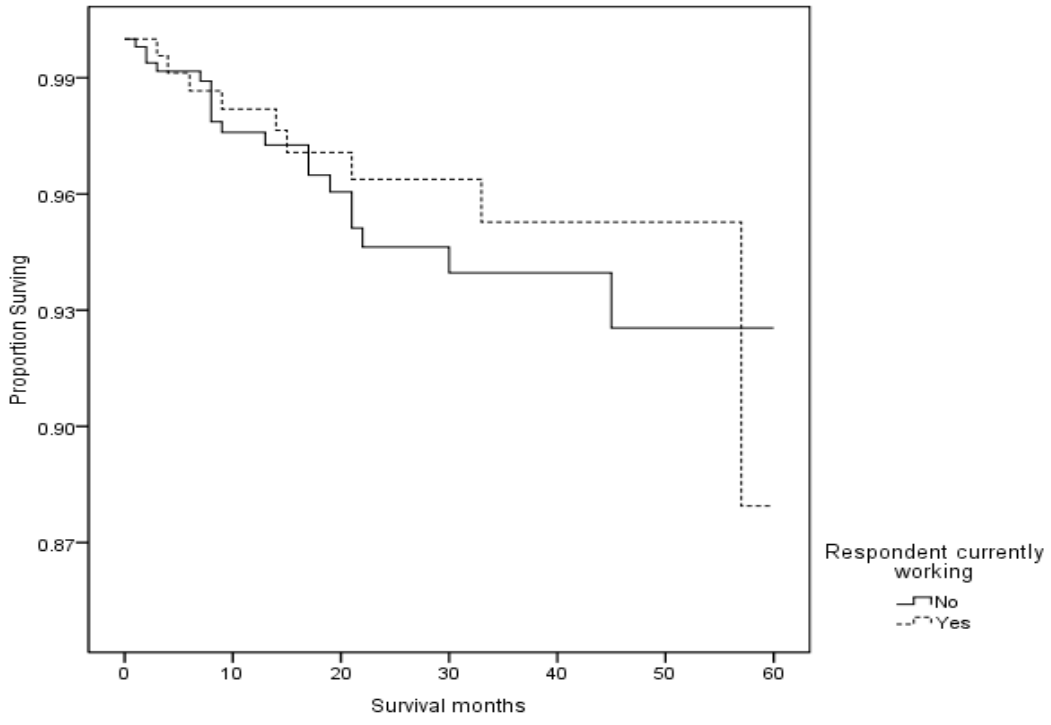

Figure 3. Kaplan-Meier Survival Curves Classified by Mothers age at first Birth

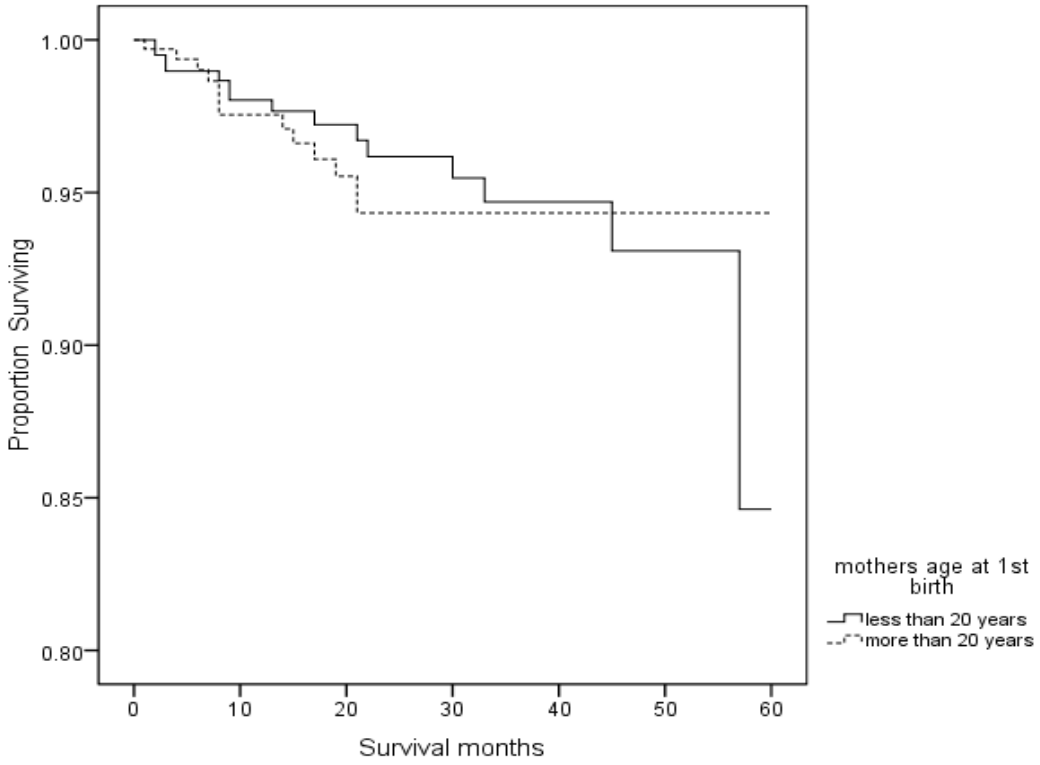

Figure 4. Kaplan-Meier Survival Curves Classified by Preceding Birth Interval

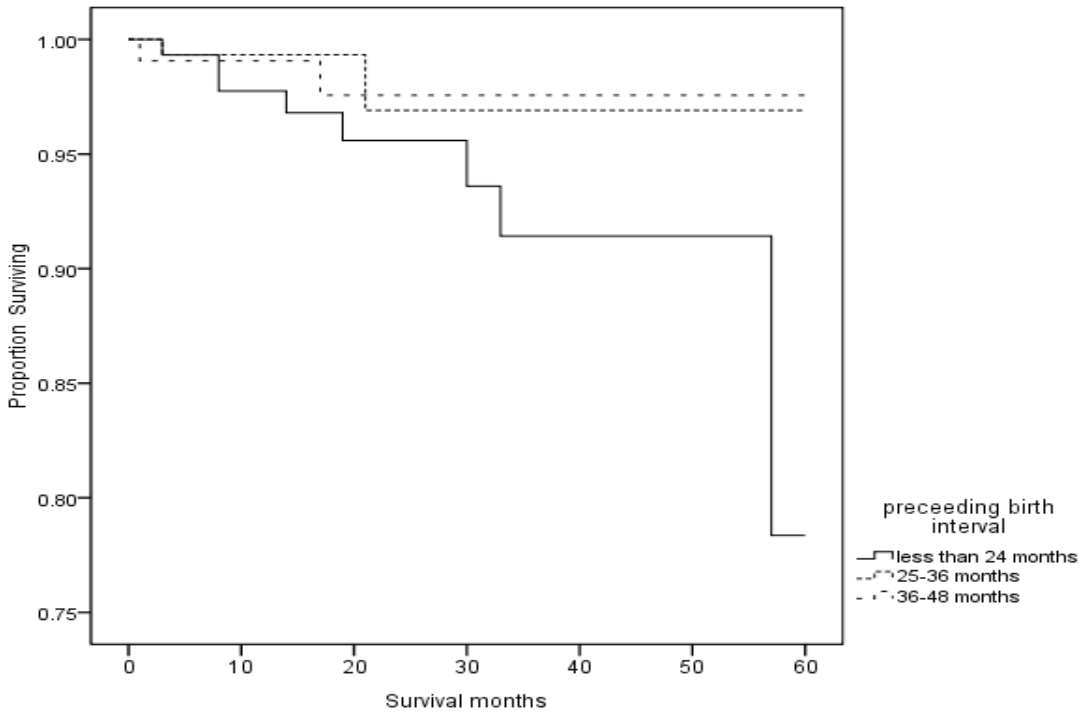

Figure 5. Kaplan-Meier Survival Curves Classified by Size of the child at Birth