



ASSESSMENT OF CHILD MORTALITY IN CHILDREN UNDER FIVE YEARS AT THE COAST GENERAL TEACHING AND REFERRAL HOSPITAL, KENYA

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ABSTRACT

According to World Health Organization, children in Sub-Saharan Africa are more affected where the cases of deaths are 15 times more than the children in high income countries (WHO 2019). The carried out an assessment of child mortality at the Coast General teaching and Referral Hospital by looking at the prevalence, risk factors associated and utilization of Maternal Child Health services at the hospital. The study used a cross sectional study design where the target populations were children delivered as well as those seeking health services at the hospital. The study recruited a sample size of 384 participants. Structured questionnaire was used to collect quantitative data and interview for qualitative data then data was analyzed using SPSS version 20. The study results were presented using tables and pie charts. The study findings show that child mortality rate stands at 31%, 54.9% of the mothers had given birth to children with more than 2.5kg and 50.8% developed pregnancy or delivery complication. Bivariate analysis finding show that age during the first birth ($p=0.036$), placenta and umbilical cord complication ($p=0.007$), hospital delivery ($p=0.000$) to be statistically significant to child mortality.

KEY WORDS: *child mortality, hospital delivery, maternal and health care*

INTRODUCTION

Infant and child mortality refers to the number of deaths that occurs to children below five years and below one year respectively (Hill, 2001). The main causes of infant mortality have been identified as malaria, pneumonia, birth defects, malnutrition, low birth weight, pregnancy complications and diarrhea (Elmahdi, 2008 and WHO, 2019)

About 6.6 million children die per annually, 546,000 monthly, 125,000 weekly, 180,000 daily and 12 per minute (USAID, 2012, WHO, 2015). Currently, it's estimated that globally, 2.5 million children died in the first month of life in 2018. There are approximately 7000 new born deaths every day amounting to 47% of all child deaths under the age of 5-years up from 40% in 1990. The same number of babies were born stillbirth in 2015 (UNICEF, 2019)

In this project main focus is on below five and below one year. Infant mortality rate is important to monitor progress since it represents an important component of under-five mortality. Infant mortality rates are also important because they reflect the social, economic and environmental conditions which children and others in society live including the quality and accessibility of health care.

Poverty has also been a key factor in several cases child infant mortality. All these factors have to be worked on in order to ensure infant and child mortality cases are reduced.

Objectives

General objective

Assessment of child mortality at the Coast General Teaching and Referral Hospital



Specific objectives

1. To determine the prevalence of child mortality in Coast General Teaching and Referral Hospital
2. To establish the risk factors of child mortality in Coast General Teaching and Referral Hospital
3. To determine the level of maternal and child health care services in Coast General Teaching and Referral Hospital

METHODOLOGY

This study descriptive cross-sectional to with aim to collect both qualitative and quantitative data in regards to child mortality and its associated risk factors in Coast General Teaching and Referral Hospital

This design was chosen because it will give room for assessment of the prevalence of under-five mortality in the population that visits the institution. This design will also help in finding out the risk factors that are associated with less than five mortality and the correct measures to be implemented to reduce this deaths.

Sampling

The study carried out three interview sessions with health workers (nurses, nutritionist, doctors, pediatricians and gynecologist) working at the hospital. The face to face questionnaires were administered to mothers and children guardians at the hospital (maternity ward, children wards and MCH clinic). Systematic random sampling was used to recruit the subjects at an interval of five until required sample size was realized. The recruitment was carried out between Monday to Friday (8am-5pm) for the entire study period. All subjects were taken through the study objectives, benefits and risks before consenting. Confidentiality was assured at every stage of this study

The collected data was edited then entered into SPSS software (version 21) for analysis based on the study variables. The study results was presented using tables and pie charts

Sample size

The study sample size was calculated using the Cochran’s formula (Cochran’s, 2010)

$$n = \frac{z^2 P(1 - P)}{\alpha^2}$$

Where:

n = Minimum required sample size

z = Reliability coefficient (1.96 at 95% confidence interval)

p = Estimated proportion of PLHIV who have disclosed their HIV status taken to be 49%.

α = Maximum likely error (5%)

Therefore, the minimum sample size will be given as;

$$n = \frac{1.96^2 \times 0.49 \times (1 - 0.49)}{0.05^2} = 384$$

SYUDY AREA

The study was undertaken in Coast General Teaching and Referral Hospital located in Mvita constituency, Tononoka ward in Mombasa County. The hospital is former Coast Provincial General Hospital (CPGH). The hospital is located in Mvita constituency which currently has a population of 143,128 and sits in an area of approximately 14.80 Sq.km (KNBS, 2019).

The main economic activities that are carried in this region are fishing, petroleum refining, tourism and import and export business due to the largest seaport at the Kilindini Harbour.

RESULTS
Figures

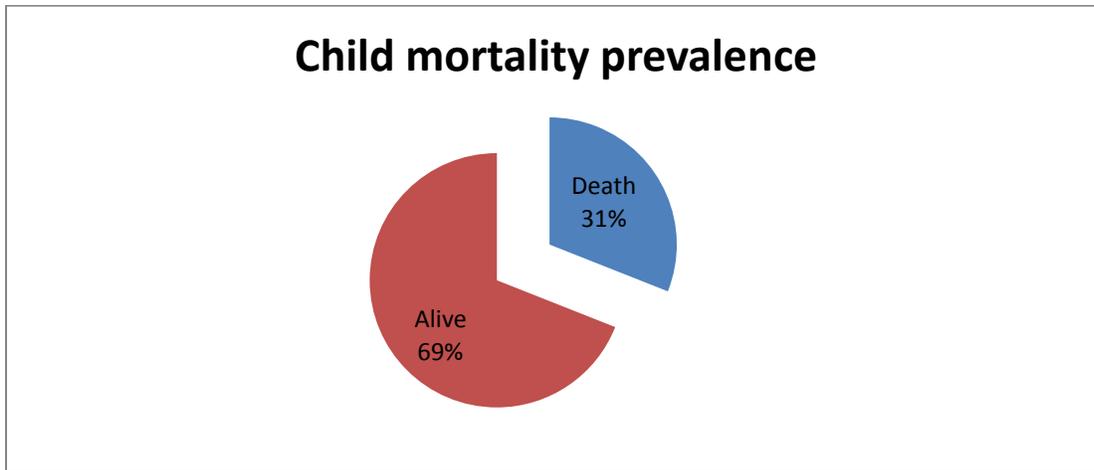


Figure 1: Prevalence of child mortality in CGTRH

TABLES

Table 1: Socio demographic factors

Variable	Category	Frequency (N=384)	Child mortality Death (n=120)	Alive (n=264)	
Children					
	Gender				
	Male	227(59.1%)	71(59%)	156(59.1%)	
	Female	157(40.9%)	49(41%)	108(40.9%)	
Mothers					
	Occupation	Employed	254(68.7%)	80(77%)	174(65.9%)
		Unemployed	130(31.3%)	40(33%)	90(34.1%)
	Education level	Non	83(21.6%)	26(21%)	57(21.6%)
		Primary	122(31.8%)	38(32%)	84(31.8%)
		Post primary	179(46.6%)	56(47%)	123(46.6%)
Age in first birth	<18 years	128 (33.3%)	49(40.8%)	79(29.9%)	
	>18 years	256 (66.7%)	71(59.2%)	185(70.1%)	

Table 2: Child mortality as per the age range

Age range	Frequency (N=384)	Child mortality Death (n=120)	Alive (n=264)
0-1 years	96(25.5%)	31(25.8%)	65(25.4%)
1-2 years	89(23.2%)	28(23.3%)	61(23.1%)
2-3 years	72(18.8%)	22(18.4%)	50(18.9%)
3-4 years	57(14.8%)	18(15%)	39(14.8%)
4-5 years	68(17.7%)	21(17.5%)	47(17.8%)



Table 3: Risk factors to child mortality

Variable	Category	Frequency (N=384)	Child mortality	
			Death (n=120)	Alive (n=264)
Children				
Birth weight	<2.5kg	157(40.8%)	49(41%)	108(40.9%)
	>2.5kg	227(59.2%)	71(51%)	156(59.1%)
Injuries or accident	Yes	137(35.7%)	43(36%)	94(35.6%)
	No	246(64.3%)	77(64%)	169(64%)
Placenta or umbilical cord complications	Yes	176(45.8%)	65(54%)	111(42%)
	No	208(54.2%)	55(46%)	153(58%)
Pregnancy or delivery complication	Yes	195(50.8%)	61(51%)	134(50.8%)
	No	163(49.2%)	59(49%)	104(39.4%)
Infant infections (respiratory distress, bacterial sepsis, neonatal hemorrhage)	Yes	211(54.9%)	66(55%)	145(54.9%)
	No	117(45.1%)	54(45%)	63(23.9%)
Mother				
Preceding birth interval	<2 years	224(58.3%)	70(58%)	154(58.3%)
	>2 years	160(41.7%)	50(42%)	110(41.7%)
Hospital delivery facilities	Adequate	218(56.8%)	68(56%)	150(56.8%)
	Not adequate	166(43.2%)	52(44%)	114(43.2%)
Cultural or religion influence on maternal health	Yes	227(59.1%)	71(59%)	156(59.1%)
	No	157(40.9%)	49(40%)	108(40.9%)

Table 4: Utilization of maternal and child health services

Variable	Category	Frequency (N=384)	Child mortality	
			Death (n=120)	Alive (n=264)
Hospital delivery	Yes	306(79.7%)	52(33%)	254(96.2%)
	No	178(20.3%)	68(57%)	110(41.7%)
Perception on Health care services (public hospitals)	Satisfactory	166(43.2%)	50(41.8%)	116(43.9%)
	Unsatisfactory	218(58.8%)	70(58.3%)	148(56%)
Access to free mosquito nets	Yes	128(33.3%)	40(33%)	88(33.3%)
	No	256(66.7%)	80(67%)	176(66.7%)
Post or antenatal clinic	Yes	192(50%)	60(50%)	132(50%)
	No	192(50%)	60(50%)	132(50%)
Free maternity services	Yes	208(54.2%)	65(54%)	143(54.2%)
	No	176(45.8%)	55(46%)	121(45.8%)
Referral system	Yes	195(50.8%)	61(50.8%)	134(50.8%)
	No	189(49.2%)	59(49.2%)	130(49.2%)



Table 5: Bivariate analysis on socio demographic factors

Variable	Category	Child mortality		Df	Chi square	P - value
		Death (n=120)	Alive (n=264)			
Child gender	Male	71(59%)	156(59.1%)	1	0.000	0.989
	Female	49(41%)	108(40.9%)			
Mothers Occupation	Employed	80(77%)	174(65.9%)	1	0.021	0.884
	Unemployed	40(33%)	90(34.1%)			
Education level	Non	26(21%)	57(21.6%)	2	0.24	0.884
	Primary	38(32%)	84(31.8%)			
	Post primary	56(47%)	123(46.6%)			
Age in the first birth	<18 years	49(40.8%)	79(29.9%)	1	4.418	0.036
	>18 years	71(59.2%)	185(70.1%)			

Table 6: Bivariate analysis on the risk factors in child mortality

Variable	Category	Child mortality		Df	Chi square	P - value
		Death (n=120)	Alive (n=264)			
Children						
Birth weight	<2.5kg	49(41%)	108(40.9%)	1	0.000	0.989
	>2.5kg	71(59%)	156(59.1%)			
Injuries or accident	Yes	43(36%)	94(35.6%)	1	0.000	0.986
	No	77(64%)	169(64%)			
Placenta or umbilical cord complications	Yes	65(54%)	111(42%)	1	4.882	0.027
	No	55(46%)	153(58%)			
Pregnancy or delivery complication	Yes	61(51%)	134(50.8%)	1	0.962	0.327
	No	59(49%)	104(39.4%)			
Infant infections (respiratory distress, bacterial sepsis, neonatal hemorrhage)	Yes	66(55%)	145(54.9%)	1	7.177	0.007
	No	54(45%)	63(23.9%)			
Mother						
Preceding birth interval	<2 years	70(58%)	154(58.3%)	1	0.000	1
	>2 years	50(42%)	110(41.7%)			
Hospital delivery facilities	Adequate	68(56%)	150(56.8%)	1	0.001	0.978
	Not adequate	52(44%)	114(43.2%)			
Cultural or religion influence on maternal health	Yes	71(59%)	156(59.1%)	1	0.000	0.989
	No	49(40%)	108(40.9%)			

Table 7: Bivariate analysis as per the child age

Age range	Child mortality		Df	Chi square	P - value
	Death (n=120)	Alive (n=264)			
0-1 years	31(25.8%)	65(25.4%)	4	0.069	0.999
1-2 years	28(23.3%)	61(23.1%)			
2-3 years	22(18.4%)	50(18.9%)			
3-4 years	18(15%)	39(14.8%)			
4-5 years	21(17.5%)	47(17.8%)			



Table 8: Bivariate analysis on utilization of maternal and child health services

Variable	Category	Child mortality		Df	Chi square	P = value
		Death (n=120)	Alive (n=264)			
Hospital delivery	Yes	52(33%)	254(96.2%)	1	27.148	0.000
	No	68(57%)	110(41.7%)			
Perception on health care services (public hospitals)	Satisfactory	50(41.8%)	116(43.9%)	1	0.174	0.677
	Unsatisfactory	70(58.3%)	148(56%)			
Access to free mosquito nets	Yes	40(33%)	88(33.3%)	1	0.000	1
	No	80(67%)	176(66.7%)			
Post or antenatal clinic	Yes	60(50%)	132(50%)	1	0.000	1
	No	60(50%)	132(50%)			
Free maternity services	Yes	65(54%)	143(54.2%)	1	0.000	1
	No	55(46%)	121(45.8%)			
Referral system	Yes	61(50.8%)	134(50.8%)	1	0.000	1
	No	59(49.2%)	130(49.2%)			

DISCUSSION

Among the 384 respondents that participated in the study, there were about 227 (59.1%) male children and about 176 (46.6%) of the mothers had post secondary education. The bivariate analysis on socio demographic factors found out that age of the mother during first birth ($p=0.036$) was significant. Child mortality vary on different age groups but predominant in 0-1 years with 196 (25.5%) cases. Similar findings by Michael NK, Babayara and Bright Addo (2019) found out that factors like maternal age at time of birth of the child, maternal education, family size, birth intervals, access to health care and factors surrounding the prenatal and postnatal periods, sex of the child, household socioeconomic status, and residence contribute greatly to child mortality. The child mortality prevalence was found to be 31%, a study WHO data analysis show child mortality of 31 in 1000 live birth in 2018 while world data analysis report on Sab Saharan Africa show 100 in 1000 live births (WHO, 2015)

Child mortality was found to result from many risk factors that were grouped into three. On the side of the child; about 59.2% had a birth weight above 2.5kg, 195 (50.8%) had pregnancy or delivery complication and 211 (54.9%) developed infant infections like respiratory distress, bacterial sepsis and neonatal hemorrhage. On the side of the mother; about 224 (58.3%) had a preceding birth interval of below 2 years, 227 (59.1%) had the influence of cultural and religion practices and 218 (56.8%) utilize hospital delivery. While the bivariate analysis found out that placenta or umbilical cord complication ($p=0.0021$) and infant infection ($p=0.0007$) were statistical significant. A study by Mwangi and Murrithi (2015) show the

determinant risk factors to infant and child mortality to be birth spacing ($p=0.007$), mothers age ($p=0.006$), mothers with more than three children ($p=0.002$) and delivery complications ($p=0.002$)

The study objective was to look at the utilization of Maternal and Child health (MCH) services among the respondents. The findings show that 306 (79.7%) deliver in the hospital, 218 (58.8%) had unsatisfactory perception on health care services in public hospitals. About 192 (50%) of the respondents utilize post and antenatal clinics, 208 (54.2%) utilize free maternity services offered by the government and 195 (50.8%) utilize services of available hospital referral systems. The bivariate analysis findings show that hospital delivery ($p=0.000$) to be statistically significant. A study by Chuma and Maina (2014) found 81% uptake of hospital delivery after introduction of free maternity services by the government at all public hospitals.

CONCLUSION

Every mother carrying a pregnancy has expectation to give birth to alive baby and the child grows up well. However, this dream is still robbed by mortality to a ratio of 3:7. Kenyan constitution in the bill of rights entitles every citizen a right to quality, effective and efficient health care. The government also rolled out free maternity services in 2013 with the objective to enhance hospital delivery and utilization of health services (Bourbannais, 2013). The common visible risk factors to child mortality are respiratory distress, bacterial sepsis and neonatal hemorrhage



RECOMMENDATIONS

Based on the study findings, the study recommends the following;

1. The ministry of health need to boost up child mortality surveillance in order to improve on early diagnosis and treatment of childhood infections
2. There should a continuous empowerment of women to utilize free maternity services provided by the government in all public hospitals in Kenya
3. The ministry of health should its infrastructure in order to provide both FREE delivery, pre and postnatal clinics and any health disorder to children under five years of age

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