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Utilization of Mother and Child Booklet among Mothers Attending Well Baby Clinic in Nakuru Central District

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Abstract: ***Background: The mother and child health (MCH) booklet is an essential integrated document formulated by the Ministry of Health that provides for linkage of services across the continuum of maternal and neonatal care. The booklet has a provision for recording all the interventions for the mother during pregnancy, delivery and postnatal period. It also captures information on infant care from birth to five years of age. Methods: A cross sectional descriptive study that sought to determine the utilization of MCH booklet by mothers attending the well baby clinic in Nakuru central district was done. Purposive sampling of health care facilities that provide antenatal, delivery and postnatal services in Nakuru central district to include government, faith based and privately run facilities in Tier 2, 3 and 4 of health care, was done. Postnatal mothers attending well baby clinic were selected from the facilities at random for interview using the structured questionnaires. Results: A total of499 mothers with children aged less than one year attending the well baby clinics were interviewed using structured questionnaires to determine availability and utilization of mother and child booklets. Data was processed using the SPSS software (version 20). Upto 99.6% of the mothers had attended Antenatal clinic (ANC) and 98.6% of them had been given the standard MCH booklet. However, only 59% of them were explained the contents of the book by the health care providers and up to 33.5% of the mothers did not read the instructions in the MCH booklet. Conclusion: On the overall the utilization of the MCH booklet was found to be insufficient by the mothers attending well baby clinic Nakuru central district. There is need to emphasis the importance of the MCH booklet and encourage its utilization by the mothers during antenatal clinics***

Keywords: mother and child booklet, utilization, access, postnatal care

1. Introduction

Worldwide approximately 350,000 maternal deaths and 4 million neonatal deaths occur annually [1].Almost all or 99% of these deaths occur in developing countries: Asia and Africa alone take 95% of the share of the world's maternal deaths [2]. Sub-saharan Africa is far from achieving the objectives set by MDGs of having maternal deaths and reducing child deaths by two thirds by 2015 [3]. In Kenya the maternal mortality ratio is high at 488 deaths per 100,000live births and despite improvement in the infant and child health status, a high number of neonatal deaths 52 per 1,000 live births poses a serious public-health concern [4].

The United Nation's Millennium Development Goals call for substantial reductions in maternal and child mortality, to be achieved through reductions in morbidity and mortality during pregnancy, delivery, postpartum and early childhood. However, there is a significant break in the continuum of care in the service-delivery strategy. Globally, the burden of maternal complications and deaths is highest in the first few days of delivery and almost three-quarters of neonatal deaths occur within the first seven days of delivery [5], [6]. Thus, immediate and early postnatal interventions (defined to be from delivery to first seven days), have the potential to change the maternal and child mortality scenario significantly in Kenya.

The primary strategic objective to achieve this goal is to increase sustainable key health-practices and the use of essential services in communities. It has been noted that women's utilization of maternal health services is often influenced by perceived socio-cultural, economic and health system factors operating at the community, household and individual level as well as within the larger social and political environments and health care infrastructure [7], [8].

One of the primary easily applicable and sustainable strategies is better utilization of mother and child booklet. This booklet contains essential information about the course of pregnancy, delivery, postnatal care, family planning, immunization schedule, growth monitoring using the WHO growth curves up to five years. Other information includes early identification and care of HIV infected mothers and HIV exposed infants. The booklet is offered free of charge in all government institutions during the first antenatal care clinic.MCH booklet is kept by the family, in order to promote and maintain the health of the mother and child. It is considered as an educational material since it contains useful information and health messages for mothers. It also provides complete necessary information about the mother and the baby and acts as a referral tool for women in times of delivery. Moreover the booklet can be kept and utilized as a reference document for all information relating to the child. Studies in developed countries have showed that the booklet has been utilized by both the parents and the clinicians in order to promote health. In Swiss Carrel et al found that, 73% of parents and 46.4% of paediatricians' reported using the booklet either regularly or occasionally but the frequency of use was noted to be significantly correlated with age of child [9].Adequate utilization of the mother to child booklet has been noted to be very beneficial to the mothers and the family at large.

Studies show some positive outcomes related to the use of the patient-held maternal and/or child record. The most

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positive effects relate to the patient's (mother) emotional state and feelings of control and access to information, particularly in developed countries, and results of improved health outcomes with the patient-held maternal and/or child record in developing countries [10], [11]. Health care providers need to be empowered with knowledge and skills in order to impart the right information to the mothers. Various studies have demonstrated the importance of heath care providers as a source of information regarding heath. In this population from Sydney, Australia, more highly educated/health literate patients seem to take a higher responsibility for making their own decisions regarding healthcare, whereas less educated patients relied more on healthcare providers to make decisions to which they would either agree or disagree [12].Shieh et al in a study in USA also found that pregnant women with low literacy level tended to rely on information from healthcare providers more than women with higher health literacy[13].

Despite the numerous benefits to the mother of the maternal and child booklet and the integration of both maternal and child information, utilization remain a challenge in developing countries. The study was aimed at determining how well mothers and health care workers were using the booklet in Nakuru central district.

2. Objectives

Specific Objectives

- To determine socio-demographic characteristics of mothers attending well baby clinics
- To determine access to MCH booklet among mothers attending well baby clinics
- To determine knowledge of postnatal care practices among mothers attending well baby clinics
- To determine the factors associated with mothers utilization of MCH booklet

3. Research Design and Methodology

Study Area

Nakuru central district has been re-designated as Nakuru Central sub-county, it is one of the 9 sub-counties in the Nakuru County and it includes Nakuru town which is currently the fourth largest urban centre in the country. The county has an estimated population of 1,812,902 people. Nakuru central district lies about 1850 m above sea level. It is located in the Great Rift Valley and about 150 KM West of Nairobi. It has a population of 473,288 people. It is a cosmopolitan district with people from different cultures. Its main economic activities are manufacturing, agriculture and tourism. Nakuru has much government, non-governmental and private health facilities.

4. Sampling Size and Sampling Procedure

1. Sampling Procedures for Health Facilities

This was purposive sampling to include government run facilities in Tier 2, 3 and 4 of health care, faith based and private facilities. The sampling frame was the 37 listed health facilities in the district which offer the package of antenatal, delivery and post natal care. Random sampling was done from the facilities to ensure stratified representation of the facilities reflecting owning agency and tier as follows:

- Government owned facilities; Provincial General Hospital,Nakuru –Tier 4,Annex PGH Nakuru-Tier 4, Lanet Health Centre-Tier 2, Bondeni Maternity –Tier 2
- Faith Based Facilities; PCEA Nakuru west- Tier 2, Mother Kelvin- Tier 2
- Private for profit; Mediheal Hospital- Tier 3, Nakuru Nursing Home – Tier

2. Sampling Procedure for Postnatal Mothers

Sample size was calculated using Fischer's formula arriving at a sample size of 374 (Z= confidence level at 95 %(standard value of 1.96), P= estimated prevalence of postnatal follow-up in Kenya 42% (KDHS 2010). 10% contingency gives a minimum sample size of 414. Postnatal mothers attending well baby clinicfrom the eight sampled facilities were selectedat random for interview using the structured questionnaires

Baseline Survey

The study tools for the baseline survey were developed. Data collectors were recruited and trained on the study process. The researchers and data collectors did preliminary visits to the selected study sites. Pre- testing of the study tools was done in two facilities; Evans Sunrise Medical Centre (private, tier3) and Kapkures health centre(GoK, tier2) resulting in amendments to the questionnaires.

Data Management

The processing of data involved office editing, coding of open-ended questions, data entry, and editing inconsistencies found by computer programmes. Data was processed using the SPSS software (version 20) to identify gaps in the implementation of the focused postnatal care and neonatal care in the district

Ethical Clearance

Ethical approval for the research was sought from the Egerton University Ethics Research Committee and National Council for Science and Technology. Permission to interview the health care workers and mothers was sought from the management of the respective health facilities. The questionnaires were administered on those willing to take part with full disclosure of the study purpose and confidentiality of all information obtained. There was no coercion or enticement to participate in the study.

5. Results

Knowledge and practices amongst PNC mothers

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Table 1: Socio-demographic characteristics of mothers attending Well baby clinic at Nakuru Central District (N=499)

Characteristics	%
Age of the mother	
Less than 18 yrs	1.2
18-35yrs	87.4
36-45yrs	11.4
Marital status	
Single	12.0
Married	87.0
Divorced/separated	1.0
Total number of deliveries	
1	37.3
2-4	57.7
5+	5.0
Accompanied by spouse to ANC	40.9
Accompanied by spouse to PNC	29.1
Level of Education	
None	5.4
Primary school	34.9
Secondary school	33.7
Middle level college	18.8
University	7.2
Access to mobile telephone	93.4
Ownership of accessible mobile telephone	
Personal	93.2
Family	2.6
Others	4.2

Majority of the mothers were of reproductive age 18-35 years and 87% being in married relationship and 37.3% being first time mothers.40.9% of the mothers were ever accompanied by their spouse to the antenatal care clinic whereas only 29.1% were accompanied by their spouses to the postnatal care clinic. 94.6% of the mothers had at least basic level of education. Majority of the mothers had access to a mobile telephone and the set was personal in 93.2% of the mothers.

Table 2: MCH booklet availability and utilization for mothers attending MCH clinic at Nakuru Central District (N=499)

Attribute	%
Mothers who were given MCH booklet during ANC	98.6
Mothers received explanation on content of MCH booklet from the care provider during ANC	59
Mothers who read all the instructions in the MCH booklet during ANC	66.5

Of the mothers, 99.6% attended ANC clinic and 98.6% of them were given the standard MCH booklet. However, only 59% of them were explained the contents of the book by the health care providers and up to33.5% of the mothers did not read the instructions in the MCH booklet.

Table 3: Information on postnatal care given to mothers during the ANC period at Nakuru Central District (N=499)

Information	%
Information concerning PNC during ANC	56.8
Information on place of delivery	89.8
Information on childbirth and parenting education	46.1
Information on Breastfeeding counseling	71.7
Information on danger signs for the mother after delivery	46.9
Information on danger signs for a neonate after delivery	46.5
Information on prevention and counseling of unintended pregnancies/FP	36.7
Information on screening for reproductive tract cancers	13.0
Information & counseling on HIV	73.3

Information regarding postnatal care during the antenatal care clinic visits was not given to 43.2% of the mothers. Information on choice of place of delivery was sought and given to 89.8% of the mothers, but 53.7% did not receive information on childbirth and parenting.Breastfeeding information was given to 71.7% of the postnatal mothers. Information of maternal and neonatal dangers was not given to 53.1% and 53.5% of mothers respectively.FP information was only given to 36.7% of the mothers and only 13% received information on reproductive tract cancers during the antenatal period.26.7% of the postnatal mothers did not receive information and counseling on HIV.

Table 4: Postnatal neonatal care practices among mothers attending well baby clinic in Nakuru Central District (N=499)

Practice	%
Duration from birth to cleaning the neonate	
Within 1 hour	10.5
1-6 hours	22.7
6-12 hours	17.0
12-24 hours	23.3
>24 hours	26.4
Duration from birth to breast attachment	
Within 1 hour	73.0
1-6 hours	17.7
6-12 hours	5.0
12-24 hours	4.2
Umbilical cord cleansing	
Apply spirit/alcohol	84.1
Apply other antiseptic	1.8
Apply nothing to the cord	3.6
Clean with plain water	6.6
Apply saliva	2.4
Breast milk	0.4
Milk	0.2
others	0.6
Timing of first postnatal review Within 48 hours	2.8
Within 1-2 weeks	51.1
Within 4-6 weeks	44.7
Within 4-6 months	0.6
Services received during post natal visit	
Physical/General body examination	66.9
Breastfeeding information	73.3
FP services	55.1
Nutrition counseling	45.9
Vitamin A	35.7
HIV testing and counseling	24.6
Baby examination	88.6
Cervical cancer screening information	25.3
Cervical screening	0.2

Only 26.4% delayed cleaning of the baby to after 24 hours and 73% of the mothers' breastfed their babies within the first one hour of birth and up to 95.8% within the first 12 hours after delivery.84.1% of the mothers were using spirit/alcohol swabs to clean the umbilical cord.51.1% of the mothers had information on attending PNC clinic at 2 weeks post delivery and only 2.8% knew of the 48hours postnatal review.32.9% of the mothers did not have general physical examination during PNC as compared to88.6% of the babies who received physical examination. Postnatal HIV testing

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and counseling was done on 24.6% of the mothers and only 55.1% of the mothers received FP services. Nutrition counseling was available to 45.9% while maternal Vitamin A supplementation was offered to 35.7% of the mothers. Cervical cancer screening information was offered to 25.3% of the mothers and only 0.2% were screened for the cancer.

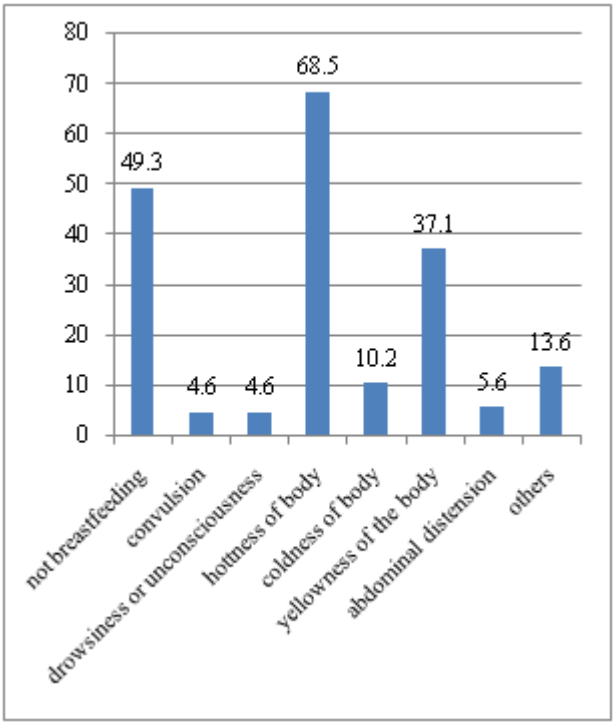

Figure 1: Knowledge of neonatal danger signs among mothers attending well baby clinic in Central District (N=499)

Recognition of most neonatal danger signs by the postnatal mothers was low with hotness of the body (fever) being the commonly recognized danger sign by 68.5%.

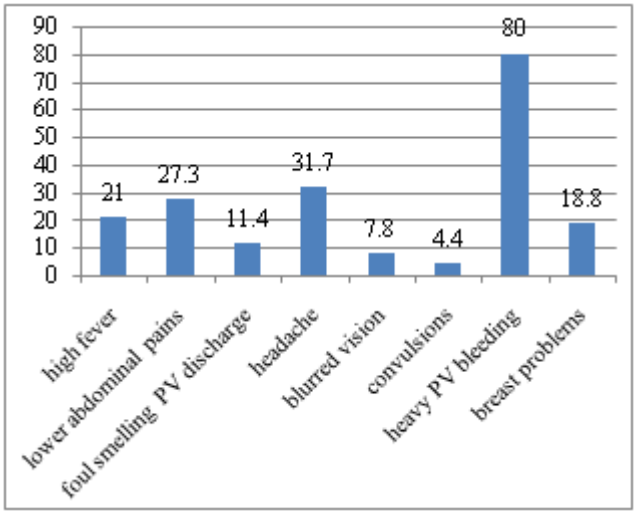

Figure 2: Knowledge of maternal danger signs among mothers attending well baby clinic in Nakuru Central District (N=499)

Recognition of most postnatal maternal danger signs by the postnatal mothers was low with heavy per vaginal bleeding being the commonly recognized danger sign by 80%.

Factors associated with maternal utilization of mother and child booklet

Table 5: Availability to MCH booklet and knowledge of postnatal danger signs

Variable	Availability to MCH booklet	X^2	df	p-value
Neonate Not able to breastfeed	50.1	6.931	1	0.008
Neonate with Hotness of body	68.6	0.422	1	0.516
Neonate with Yellowness of eyes	37.5	1.589	1	0.207
Mother with Heavy PV bleeding	80	0.319	1	0.572
Mother with Foul smelling PV discharge	11.6	0.013	1	0.91

A mother having been given an MCH booklet does not translate to her having the knowledge of postnatal care practices as outlined in the booklet.

Table 6: Characteristics of mothers reading the MCH booklet

Attributes	Reading of MCH booklet by the mothers %	X^2	df	p-value
Age of the mother Less than 18yrs 18-35yrs 36-45yrs	 1.5 87.6 10.9	1.061	2	0.588
Marital status Single Married Divorced /separated	13.3 85.8 0.9	1.489	2	0.475
Spouse/partner accompaniment	40.9	0.014	1	0.907
Highest level of education None Primary school Secondary school Middle level college university	 3.6 30.3 33.9 23.6 8.5	25.36	4	0.000
Number of deliveries 1 2-4 5+	 39.7 57.0 3.3	7.303	2	0.026
Care provider explaining of the content of the MCH booklet	68.1	33.54	1	0.000

Age of the mother, marital status and accompaniment by the spouse were not statistically significant determinant of the likelihood of the mother reading the MCH booklet. Level of education, number of deliveries and care provider explaining the content of MCH booklet were statistically significant determinant of the likelihood that the mother would read the booklet

Table 7: Postnatal mother's knowledge of danger signs and health care Provider explaining the content of booklet

Variable	Provider explained the MCH booklet	X^2	df	p-value
Neonate Not able to breastfeeding	51.9	1.903	1	0.173
Neonate with Hotness of the body.	74.7	13.25	1	0.000
Neonate with Yellowness of the body.	39.2	1.265	1	0.263
Heavy PV bleeding	84.0	7.392	1	0.007
foul smelling PV discharge	11.6	0.013	1	0.9

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There is a statistical significant relationship between health care providers explaining the content of the MCH booklet and the knowledge of neonate having hotness of body and heavy PV bleeding.

Table 8: Maternal knowledge of postnatal danger signs and having read the MCH booklet

Variable	Reading of MCH booklet	X^2	df	p-value
Mother with Foul smelling PV discharge	87.3	5.589	1	0.018
Mother with Heavy PV bleeding	12.7	33.8	1	0.000
Mother with Headache	25.2	20.41	1	0.000
Neonate Not breastfeeding	47.9	0.907	1	0.343
Neonate who is Drowsy or unconscious	6.1	4.518	1	0.034
Neonate with Yellowness of the eyes	37.3	0.000	1	1.000
Neonate Hotness of the body	71.8	4.890	1	0.031

There was a statistical significant between reading the MCH booklet and the knowledge of maternal and neonatal danger signs apart from Neonate Not able to breastfeeding and Neonate with Yellowness of the eyes

6. Discussion

Availability of MCH Booklet

The study showed that almost all mothers who come to the study sites for well baby clinic had been provided with the MCH booklet during the ANC clinic. This is compared to the Palestinian survey of where 89% received the booklet in West Bank but lower levels in Gaza strip of 63%[14]. Most mothers in the study received the mother to child booklet during the antenatal clinic in comparison to the Gaza strip where 97% received during that period and 11% during delivery this is comparable with the survey inWestBank whereonly 46% received the booklet during antenatal and 50% during delivery [14].The high rate of the availability of the booklet could be attained to the fact that most mothers believe it's the best way for one to be accepted in the government health facility during labour andthey therefore attend one or two antenatal clinics in order to get the booklets

Utilization by the Mothers

Literacy levels were high amongst the postnatal mothers with 94.6% of the mothers having at least basic level of education. This can be utilized to deliver health information related to postnatal care using various communication media. Regassa 2011 in a study in Ethiopia showed that women, who are literate, have exposure to media, and women with low parity are more likely to use both ANC and PNC services [15]. Majority of the mothers had access to a mobile telephone whereby the telephone set is personal in 93.2% of the mothers. Mothers in this study had basic literally level and therefore were assumed to have read the booklet and understand the content. Only 66.5% of the mother read the book despite the fact that over 90% had basic education. These mothers also were well connected with modern communication with majority of the mothers having their own handset. Other studies illustrate high percentage of mothers (93%)who had read the booklet on health education and information pages[14].

Inadequate utilization has also been noted in the deficient in the knowledge of maternal and neonatal danger signs and also low rates of two weekly postnatal following despite the presence of this important information in the maternal and child booklet. Studies have shown positive effect on patients holding maternal and/or child records in developed countries. Thesemothers, for the most part, tend to relate positive feelings of confidence, control, access (feelingbetter informed), satisfaction, and improved communication and interaction during the healthcareprocess [10], [11].

Utilization by the Health Care Workers

During the duration of study it was found that most health care workers had some knowledge on postnatal care especially considering majority of the staff had been working in maternity and newborn units for more than a year and had gained some on job knowledge. The study noted that most of the health care workers did not understand the contents of the MCH booklet and therefore the information imparted to the client could have been deficient.Majority were noted not to be sure of the WHO recommended timing of postnatal care, maternal danger signs and neonatal danger signs. Others included knowledge on immediate care of newborn. There was a gap in knowledge of services that ought to be provided during postnatal clinic with majority pointing on immunization and growth monitoring and very few mentioning maternal cancer screen and family planning.

Majority of staff identified antenatal period as the best time to give mothers information on importance of postnatal care as recommended by WHO, but it was noted that despite this knowledge, the information was not given to majority of the mothers attending antenatal clinic. Recent studies document that behaviour change communications during ANC can work to promote evidence-based neonatal care practices, care-seeking and demand for skilled intrapartum and postnatal care, particularly in developing countries [15]. The biggest gap in knowledge was identified in timing of postnatal visits with only 48.6% of health care providers identifying the correct timing for postnatal follow up as recommended by WHO at 2 days, 2 weeks & 6 weeks after delivery. [16]. Inadequate knowledge by the healthcare workers is worrying because the care providers ought to have the right information to pass to the women attending antenatal and postnatal care.

Health care providers training could be a major contributor to the level of service delivered. In this study it was established that in past 3 years only 30.6% of the healthworkers had received in-service training on subjects related to the newborn care and only 31.9% of health care providers had received in-service training related to the antenatal or postnatal care of the mothers. The inadequate information could be attributed to the little training on maternal and neonatal care that most of the staffs in the departments have attended. This is despite only 59% of mothers were given the explanations about the booklet by healthcare providers. This is compared with the Palestinians' survey that showed a high percentage of mothers who were

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given the information (71%) identified a health care provider as the source of health information for the mothers [14].

Various studies have identified the importance of regularly updating health care workers knowledge. In aStudy in Gambia, Manneh identified prevention, recognition and management of complications as depending on experience and training, and regular training of health workers in all forms plays a major role in safe motherhood[17]. Senarath et al in the study in Sri Lanka found that a 4 days training on newborn care resulted in significant improvement in practices of cleanliness, thermal protection, breast feeding rates and neonatal assessment[18]. This is because when women are knowledgeable about different modes of treatment they are more inclined to insist upon their rights and demand choices [19].

7. Conclusion

The access to MCH booklet among the mothers attending well baby clinics in Nakuru central district was high but the health care providers' role of information transfer to mothers using the MCH booklet was inadequate. Overall utilization of mother to child booklet was low as evidenced by paucity of knowledge on correct postnatal maternal and neonatal care practices by the mothers

8. Recommendation

The study recommends that health care workers be trained on postnatal care package with great emphasis on the importance of using the MCH booklet and explaining its contents to the ANC and PNC the mothers. Health messages should also be provided to mothers attending antenatal clinic and during discharge after delivery.

9. Competing Interests

The authors declare that they have no competing interests.

10. Authors' Contributions

All authors conceptualized the study and wrote the proposal, collected data, participated in data analysis and wrote the manuscript.

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