East African Medical Journal Vol. 94 No. 12 December 2017
THE ROLE OF MATERNAL, PSYCHOSOCIAL AND SOCIAL-CULTURAL FACTORS IN HIV-EXPOSED INFANTS' SERVICE UPTAKE; NAKURU COUNTY REFERRAL HOSPITAL, KENYA
Eliza Wachuka Wambui, BSCN, KRCHN, Department of Population and Reproductive Health, Prof. Margaret Keraka, Department of Population and Reproductive Health and Dr. Purity Nguhiu, Department of Agricultural Resource Management

Corresponding Author: Eliza Wachuka Wambui, BSCN, KRCHN Department of Population and Reproductive Health. Email: elizawachuka1@gmail.com

THE ROLE OF MATERNAL, PSYCHOSOCIAL AND SOCIAL-CULTURAL FACTORS IN HIV-EXPOSED INFANTS' SERVICE UPTAKE; NAKURU COUNTY REFERRAL HOSPITAL, KENYA

E.W. Wambui, Prof. M. Keraka and Dr. P. Nguhiu

ABSTRACT

Objective: **To assess relationship between maternal determinants, psychosocial, social-cultural factors and uptake of routine HEI services among HIV- Exposed Infants in Nakuru County Referral Hospital, Kenya.** ***Design:*** **A cross-sectional descriptive study**
Setting: **Nakuru County Referral Hospital, Kenya.**
Subjects: **Three hundred and twenty-nine (329) mother/baby pairs were enrolled in to the study.**
Result: **The study showed significant statistical association between maternal factors and immunization services uptake timeliness (X2 =7.67, df=1, P=0.001). Psycho-social factors had significant association with timeliness in immunization (X2 =8.87, df= 1, P=0.03) while timeliness in uptake of Early Infant Diagnosis (EID) was (X2 =28.9, df=1, P=<0.001). Further findings on the respondents who had disclosed their HIV status to their male partners showed significant statistical association (X2 =6.88, P=0.009).**
Conclusion: **Maternal characteristics, psychosocial and social-cultural factors influenced service uptake and recommended for promotion of PMTCT psychosocial support groups among all HIV positive women and inclusion of mentor mothers as champions in demand creation, campaigns and interpersonal communication to improve the timely uptake of early infant diagnosis (EID) and immunization services.**

INTRODUCTION

Globally, more than 370,000 children were newly infected with HIV, mostly through MTCT in 2009 with 260,000 deaths among children in the same year (1). More than 90% of paediatric HIV infections are found in sub-Saharan Africa, primarily through mother-to-child transmission of HIV (2).

HIV-Exposed infants are an important population in relation to infant mortality. Various studies have shown that uninfected infants, who represent 30% of all children born in some areas of southern Africa, have higher mortality rates than do infants born to HIV-uninfected mothers, even when feeding patterns are similar (3,4). This means that all the HEI need comprehensive follow up to prevent them from acquiring the

transmission with the aim of reducing HIV related infant morbidity/ mortality.

Globally 53% of HIV-infected women received antiretroviral drugs (ARV) for Prevention of Mother-to-Child Transmission of HIV (PMTCT) in 2009 but coverage of key services for the HIV-exposed infants (HEI) born to these women were considerably low (2).

It is estimated that only 10-15% of HIV-Exposed Infants (HEI) are retained in HIV care 12 months after initiating HIV care and treatment (5).

According to Central Bureau of Statistics Census (6), Kenya had a population estimated at 38.6 million, with 1.55 million births per annum.

The HIV prevalence among pregnant mothers was 6.3 per cent with a total of 97,272 births to HIV-infected mothers thus exposure of infants to MTCT.

The overall goal of the psychosocial support program is to reduce mother-to-child transmission by empowering HIV-positive mothers and mothers-to-be to make informed decisions about their reproductive health and the health of their babies (7). Retention and provision of follow-up care to mother – infant pairs through the end of exposure to minimize risks of HIV transmission is critical (8).

Any model for the provision of comprehensive care for PLHIV and their families must ensure that clients' psychosocial needs, in addition to their medical needs, are being satisfactorily addressed (9). A comprehensive approach to HIV service provision therefore involves the integration of psychosocial support (PSS) interventions within HIV prevention, care, and treatment services (10).

The objective of the study was to assess relationship between maternal determinants, psychosocial, social-cultural factors and uptake of routine HEI services among HIV- Exposed Infants in Nakuru County Referral Hospital, Kenya.

MATERIALS AND METHODS

Study Design: The research design was a cross-sectional descriptive study with retrospective data review of mother/baby pairs enrolled in PMTCT care in Nakuru County Referral Hospital.

Variables

Independent variables: The independent variables in this study include socio-demographic characteristics of the mother (age, gender and marital status, level of education, employment, and residence), psychosocial and socio-cultural factors. Others were maternal disclosure of HIV status, timing of maternal HIV Diagnosis and infant characteristics such as age and sex.

Dependent variables: The dependent variable (outcome variable) was HIV-exposed infants' service uptake (DNA- PCR, antibody test at 9 months, infant ARVs prophylaxis and infant immunization status). Study Setting: The study was conducted in Nakuru County Referral Hospital in Nakuru County. The facility serves as a referral site for the population in the entire South Rift part of Kenya. Nakuru town is located approximately 161 Kms North Eastern of Nairobi City. Nakuru County has an area of 2,325.8 km^2. The County has a population of 1,603,325 people, fourth largest population in Kenya after Nairobi, Kakamega and Kiambu Counties (6).

The catchment population for Nakuru County Referral Hospital is 79, 882 according to DHIS population estimates of 2014. The population in this County is very diverse, with residents that have migratory background from different parts of the country.

The MCH/FP Clinic is one of the departments in the hospital offering preventive and promotive services to children aged below 5 years and women of reproductive age.

Study population: The study population comprised of 540 of HIV-Exposed Infants aged below 24 months and their mothers who are enrolled in PMTCT care. After sampling a total of 329 mother/ baby pairs were considered for the study. Health care professionals involved in the provision of EID and paediatric HIV treatment, mentor mothers and community Health workers were also targeted in the study.

Sampling Techniques: Multistage sampling approach was adopted for this study. First, purposive sampling of the study area was done due to the high prevalence rate of HIV among women attending PMTCT clinic in Nakuru County Referral Hospital which was (11%) in 2014. Secondly systematic random sampling was used to sample the required sample size for the study.

The sampling interval was calculated from k=N/n where N was the target population in a month and n was the sample size. k=540/329=1.64. This was rounded off to 2 giving kth value of 2.

Sample size determination

The sample size for this study was determination was based on a similar study carried out in Central Uganda that reported the enrolment into a PSSG due to mentor mother initiative was 69%.

The formula to calculate the actual sample size was as described by Cochran (11).

$$n = \frac{z^2 (pq)}{e^2} \quad n = \frac{z^2 (pq)}{e^2}$$

Where;

n is the desired sample size

Z is the standard normal deviation for a two tailed Z-test at 95% confidence interval;

in this z = 1.96

d is the margin of error; in this study 0.05 was adopted. p is the estimated proportion of PMTCT mothers enrolled in psychosocial support groups,

q=1-p or the proportion of PMTCT mothers not enrolled in psychosocial support groups. Therefore, by substitution n=1.962 (0.69x 0.31)/0.052

= 329

The study sample size used in this study was 329 HIV Positive women in PMTCT.

Validity: Validity of the instruments was established where a pre-test was done in a similar group to ensure completeness, coherence and accuracy of the data collection tools. The questions used were standardized and closed ended where appropriate to ensure that the responses were guided.

Reliability: Trained research assistants were supervised to ensure they administered the questionnaires correctly and consistently during pretesting of tools and during data collection.

Data handling and cleaning was done daily and errors were corrected immediately. Operational terms were clearly defined to avoid ambiguity. Replication of the data collection tools was anticipated to be possible to other similar study groups.

Data Collection Techniques: Four research assistants who were practicing nurses and trained mentor mothers were recruited and taken through a comprehensive training period before data collection began. Interviewer administered questionnaire was used to collect most of the quantitative data. Qualitative data was collected through Key Informant Interview targeting health care providers, mentor mothers and community link persons (community health workers) in the facility.

A desk review of the mother/baby booklet, HEI cards and registers was done to validate the information from the mothers during the interview period. The mother/baby pairs were interviewed daily for two months on all working days.

The key informants included two nurses offering PMTCT services, two clinical

officers; two mentor mothers all working in the MCH/FP clinic in Nakuru County Referral Hospital Two Community Health Workers from community units linked to Nakuru County Referral Hospital were included in the key informant interview.

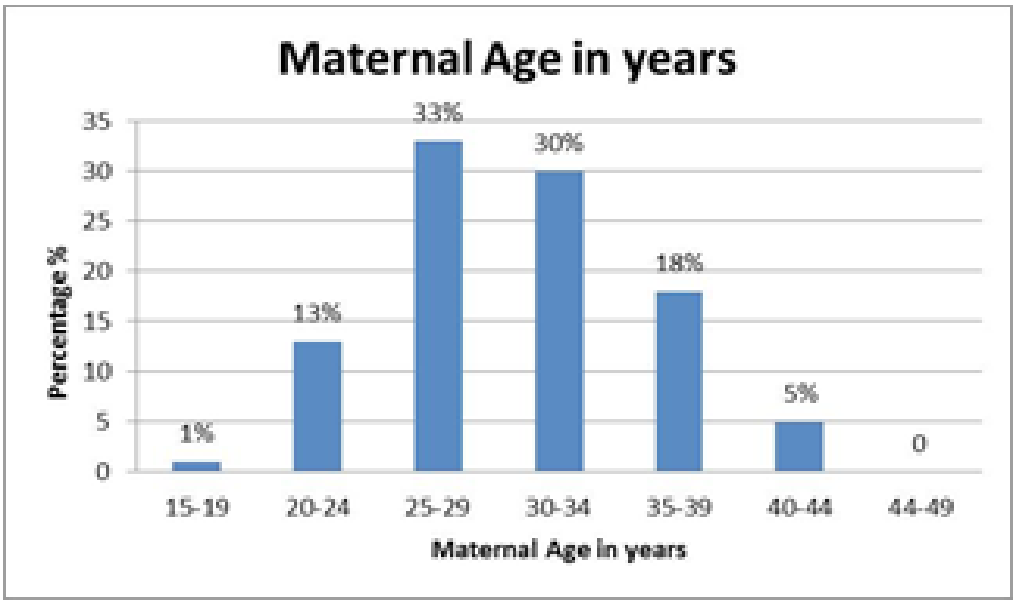
Ethical Considerations: Clearance to carry out this research was granted by Kenyatta University Ethical Review Committee. Research Authorization was granted by National Commission for Science and Technology. Permission and Approval to undertake research at Nakuru County Referral Hospital was granted. Signed informed consent was given by mothers who had HIV-Exposed infants.

Data analysis: Data were sorted and coded then entered to MS Excel data base for cleaning at the end of every field day checking for completeness and exported to Statistical Package for Social Scientists (SPSS) version 20 subsequent analysis was done. Data from key informant interviews was transcribed at the end of each field day and analysed by content analysis. Data were presented using charts, graphs and frequency tables. Hypothesis testing was done using chi-square test. All the results were considered at a significance level of 0.05.

RESULTS

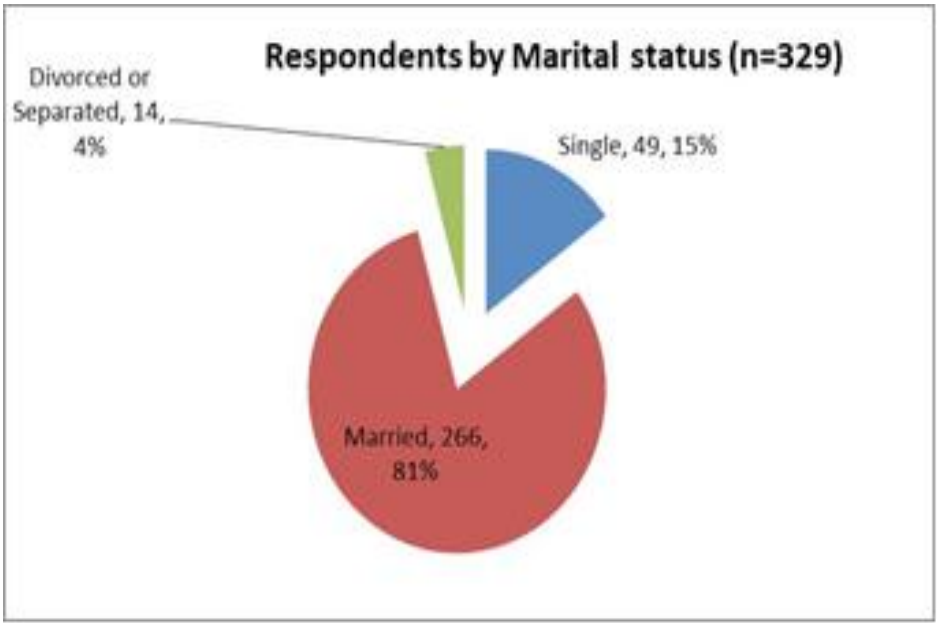
In this study, 329 women with HIV-Exposed Infants (HEI) were recruited. All the women were the biological mothers of the HIV-Exposed infants whose area of residence of the majority women was urban area 187 (56.8%). The participants' age ranged between17 years and 47 years, with a mean of 30.3 years and a standard deviation (SD) of 5.3. The modal age group was 25-29 years and made up 110 (33%) of the participants (Figure 1)

Figure 1
Participants distribution by age of the mother



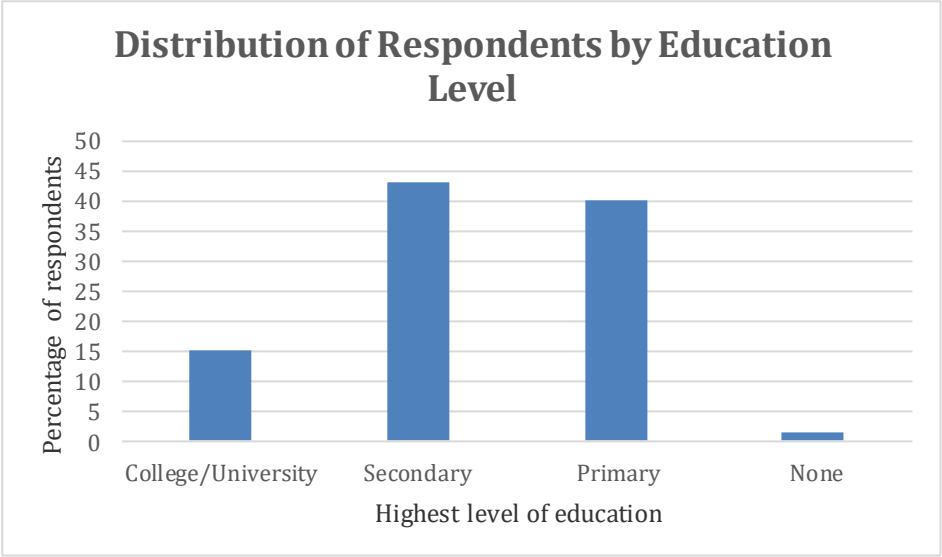
Distribution of respondents by marital status: A big majority of the participants; 266 (81%) were married while 49 (15%) were single and 14 (4%) were either divorced or separated

Figure 2
Distribution of respondents by marital status



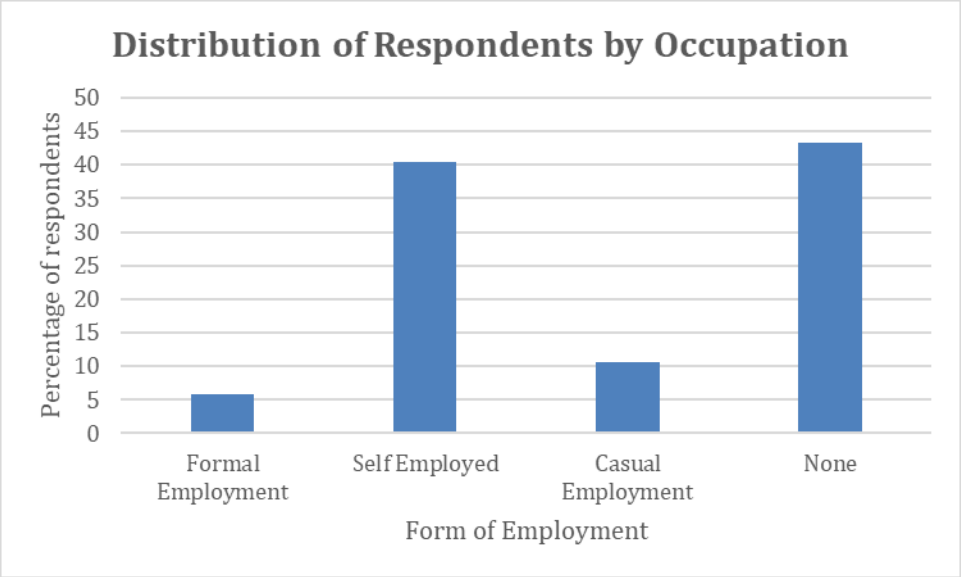
Distribution of respondents by education level: Of the 329 participants, 50(15.2%) had college/university education and 142 (43.2%) had secondary-level education. In ***Distribution of respondents by education level:*** Of the 329 participants, 50(15.2%) had college/university education and 142 (43.2%) had secondary-level education. In addition, 132(40.1%) had primary-level education while only five (1.5%) had not formal education (Figure 3)

Figure 3
Distribution of respondents by education level



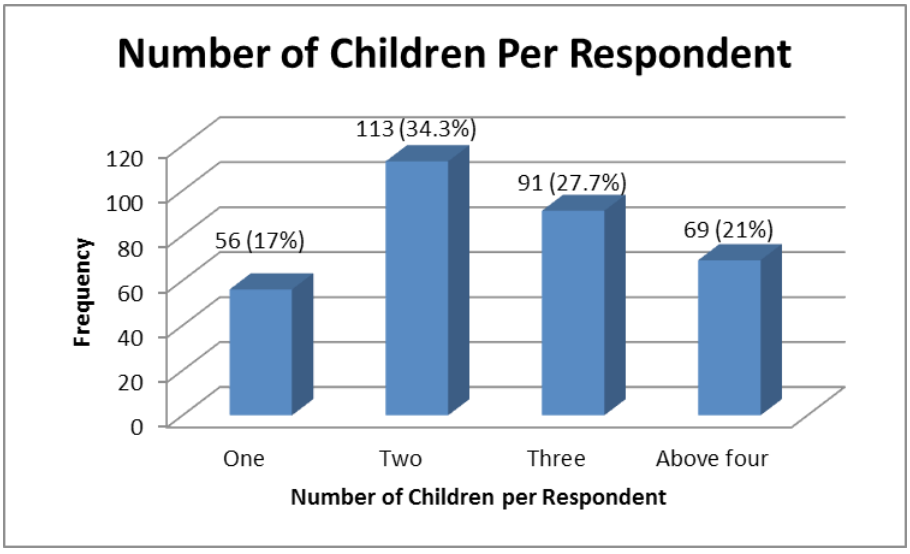
Distribution of respondents by occupation: On occupations a large proportion of the women were self-employed (40.4%) while formally employed were (5.8%), casually employed 35 (10.6%).

Figure 4
Distribution of respondents by Occupation



Distribution by number of children per respondent: Figure 4 shows that majority of the respondents 113 (34.3%) had two children each, 91 (27.7%) had three children while 56 (17%) and 69 (21%) had one and above four children respectively.

Figure 5
Distribution by number of children per respondent



Child characteristics: Infants aged below six (6) months were the majority 121(36.8%), 7-12 months being 89 (27.1%), 13-18 (26.4%) and 19-24 months being 32 (9.7%). The mean age of the exposed infants was 10 months, minimum and maximum age being one (1) and 24 months respectively with a standard deviation of 6.2. A total of 174 (53%) were males while 155 (47%) were females. Nevirapine prophylaxis was issued timely to 322 (98%) of the infants in the study (Table 1).

Table 1
Summary of child characteristics

Characteristic	Category	Observations Frequencies	Proportions
Age in Months	<2 months	6	2%
	2 months -5 months	97	29%
	6 months -8 months	52	16%
	9 months – 11months	42	13%
	12 months -17 months	81	25%
	18months to 24 moths	51	16%
	Total	329	
Gender	Male	174	53%
	Female	155	47%
	Total	329	
Nevirapine Prophylaxis	Received timely	322	98%
	Did not Received timely	7	2%
	Total	329	

Distribution of Socio-Demographic Factors against uptake of EID services

Marital status of the mothers was significantly associated with (X2 =7.67, df=1, P=0.001). The other maternal factors in the study did not show any significant statistical association with timeliness of uptake of Early Infant Diagnosis (Table 2).

Table 2
Socio-Demographic Factors against uptake of Early Infant Diagnosis (EID) Services

Social Demographic Characteristic	Timely uptake of Early Infant Diagnosis Services					
	Tested for EID timely					
	Yes		No		square statistic (df)	P-Value
	Frequency	Proportion (%)	Frequency	Proportion (%)		
Maternal Age in Years						
15-29 yrs	146	95.4%	7	4.6%	0.62 (1)	0.43
30 Yrs & Above	166	97.1%	5	2.9%		
Total	312		12			
Marital Status						
Married	256	97.7%	6	2.3%		
Not married	56	90.3%	6	9.7%	7.67 (1)	0.01 **
Total	312					
Highest level of education attained						
Post primary Education	184	96.8%	6	3.2%		
Primary or none	128	95.5%	6	4.5%	0.39 (1)	0.54
Total	312		12			
Occupation						
In Employment	176	95.1%	9	4.9%		
None Employment	134	96.4%	5	3.6%	0.31 (1)	0.58
Total	310		14			

*Key: ** Significant P-Value*

HEI SERVICES UPTAKE

Age of the infant during the initial HIV test: All 324 eligible infants enrolled in the study had had their initial HIV test. Majority 312 (96%) had been tested at the age of 6-8 weeks, 12 (4%) tested between 3-9 months.

The first antibody test for all the eligible infants aged ≥9 months was done with 166 (95%) tested at 9 months and only eight (5%) tested ≥ 10 months.

Age of baby during HEI follow-up enrolment: Majority of the HEI 314 (95.1%) were enrolled for HEI follow up between 0-2 months of age while the remaining 15 (4.6%) were enrolled after 3 months of age.

Table 3
Immunization schedule timeliness

	Within 3 days	4-7 days	8-28 days	Above 28 days	Never Issued	n
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	
Immunization (1st Dose)	306 (94.2%)	6 (1.8%)	11 (3.4%)	2 (0.6%)		325
Immunization (2nd Dose)	284 (94.0%)	11 (3.6%)	6 (2.0%)	1 (0.3%)		302
Immunization (3rd Dose)	253 (90.4%)	14 (5.0%)	8 (2.9%)	5 (1.8%)		280
Measles (6 Months)	207 (91.2%)	1 (0.4%)	5 (2.2%)	4 (1.8%)	10 (4.4%)	227
Vitamin A (6 months)	209 (92.1%)	1 (0.4%)	6 (2.6%)	5 (2.2%)	6 (2.6%)	227
Measles (9 Months)	164 (93.7%)	0 (0%)	5 (2.9%)	6 (3.4%)		175
Vitamin A (12 months)	85 (63.4%)	4 (3%)	13 (9.7%)	18 (13.4%)	14 (10.4%)	134
Deworming (12 months)	70 (51.9%)	2 (1.5%)	9 (6.7%)	30 (22.2%)	24 (17.8%)	135

Immunization Schedules Timeliness: Immunization schedule timeliness (within 3 days) was highly observed from first doses at six weeks to measles vaccine at 9 months being above 90%. Timeliness declined with age as only 85 (63.4%) immunized with Vitamin A at 12 months and only 70 (51.9%) were timely dewormed at 12 months (Table 3) Infant feeding option when baby was below 6 months of age. Exclusive breastfeeding was practiced among 304 (92.4%), while exclusive replacement feeding and mixed feeding were practiced among 5.2 % and 2.4% respectively.

Maternal determinants of HEI service uptake The study endeavoured to assess the knowledge and attitude of a psychosocial support group of the women taking part in the research. Of the 329 women, 319 (97%) had heard of a PSSG while 10 (3.0%) had no knowledge of PSSG. Among the 319 who had heard about PSSG, 6 (2%) had not enrolled in a PSSG. Among the participants who knew of the PSSG, their main source of information was mentor mothers (52%). On the other hand, health care workers were the source of this information among 44% of the participants. Only 2% of the women got the information from either the family members or friend according to Table 4.

Access to information during adherence counselling, quality of care and interaction with a mentor mother highly motivated clients to enrol in PSSG at 310 (99.2%), 308 (98.7%) and 307 (99%) respectively. During the key informant interview with community health workers, they emphasized the need for the mothers to be enrolled in psychosocial support. "We would like them to enrol in the support groups since when they enrol; they mix with other mothers who share their experiences too. This helps them see that they are not alone in the journey. *Mama atajua vile atalea mtoto wake akiwa ako HIV positive bila kumuabukiza* (the mother will learn how to keep her HIV-Exposed baby negative)" CHEW attached to Nakuru County Referral Hospital.

Table 4

Knowledge and Attitude of PSSG

Characteristic	Frequency (n=329)	Percentage (%)
Knowledge of an existing PSSG in the facility		
Yes	319	97
No	10	3
Source of information on PSSG	170	51.7
Mentor Mother		
Health Care Provider	144	43.8
Friends	3	0.9
Family Members	2	0.6
Enrolled in a support group		
Yes	313	95.1
No	16	4.9

Perceived benefits of Joining Support group: The study found that strong linkages between HCPs and Peer Support Networks as a benefit of joining PSSG 299 (94.6%) agreed while only 17 (5.4%) disagreed. If joining a PSSG lessened HIV/AIDs related stigma and discrimination 310 (98.1%) agreed and 6 (1.9%) disagreed.

If joining PSSG helps in building linkages with other programs/services that strengthen women health and decision-making, the study found that 183 (95.6%) agreed while 14 (4.4%) disagreed. The findings were similar to reports from mentor mothers during the key informant interview who said, "When the mothers and their exposed infants join the support group, the health care workers teach them on several issues which make them feel wanted. By joining support group, there is less stigma because we all have a common characteristic. We also have chamas which we have formed where we contribute little money for savings"

Disclosure of HIV status: On disclosure of HIV status, a total of 314 (95%) of the participants had disclosed their HIV status. Of the 314 participants that disclosed 262 (83%) disclosed to their male partners while 52 (17%) did not.

Of the 52 participants who had not disclosed to their male partners, 50 (96%) disclosed to a family member while 2 (4%) disclosed to a friend. A total of 67 (26%) had disclosed to both male partners and another family member. Majority (96.6%) of the women who disclosed their HIV status to the male sexual partners reported to have gotten support to take up PMTCT services. (Table5)

"Once we encourage the mother to disclose her HIV positive status, the partners usually accompany them during the clinic appointments and we even have couple support groups comprising of the women and their sexual partners" Mentor mothers during the key informant interview.

Table 5
Disclosure of HIV status

Characteristic	Frequency (n=329)	Percentage (%)
Disclosure of HIV status		
Yes	314	95.4
No	15	4.6
Male partner support on PMTCT		
Yes	253	96.6
No	9	3.4

Timing of maternal HIV Diagnosis: On timing of HIV diagnosis, majority of the women 199 (60.5%) knew their HIV positive status before conception while 119 (36.2%) were tested positive during pregnancy and 11(3.3%) were tested after delivery. Maternal factors against Early Infant Diagnosis service uptake

Table 6
Maternal factors against Early Infant Diagnosis service uptake

Maternal Determinants	Timely uptake of Early Infant Diagnosis services					
	Tested for EID timely					
	Yes		No		square Statistic (df)	P-value
Knowledge of an existing PSSG in the facility	Frequency cy	Proportion (%)	Frequency	Proportion (%)		
Yes	303	96.5%	11	3.5%	1.1 (1)	0.28
No	9	90.0%	1	10.0%		
Disclosure of HIV status						
Yes	298	96.4%	11	3.6%	0.39 (1)	0.53
No	14	93.3%	1	6.7%		
Timing of maternal HIV Diagnosis						
Before last pregnancy	190	96.4%	5	3.6%	5.9(1)	0.02**
While pregnant/breastfeeding	118	93.0%	11	7.0%		

*Key: ** Significant P-Value*

Timing of maternal HIV diagnosis was significantly associated with timely uptake of EID services (X2 =6.4, df=1, P=0.01) as per table 6 above.

Psychosocial factors: The study endeavoured to assess the knowledge and attitude of a psycho-social support group of the women taking part in the research. Of the 329 women, 319 (97%) had heard of a PSSG while 10 (3.0%) had no knowledge of PSSG. Among the 319 who had heard about PSSG, 6 (2%) had not enrolled in a PSSG. Among the participants who knew of the PSSG, their main source of information was mentor mothers (52%). On the other hand, health care workers were the source of this information among 44% of the participants. Only 2% of the women got the information from either the family members or friend according to table 4.

The Mentor Mother (MM) strategy: Among the participants who knew of the PSSG, their main source of information was mentor mothers (52%). Of the 310 respondents who had enrolled in PSSG, 307 (99%) confessed that interaction with a mentor mother motivated them to enrol in the group.

What mainly motivated the respondents was the fact that the mentor mothers were sharing about their personal experiences (peer support) as well as the quality of psychosocial support services which made the mothers feels accepted. "Once they are tested and interact with us, we share our experiences and our status to them so they get that motivation and they want to know more." said one mentor mother during Key informant interview.

Psycho social factors against Immunization and EID services uptake: The study found statistical significant association between timely immunization uptake (X2 =8.87, df= 1, P=0.03) and timely uptake of EID services (X2 =28.9, df=1, P=<0.001) against enrolment into a psycho-social support group (Table 7).

Table 7

Psycho social factors against immunization and EID services

Psychosocial Determinants	**Timely uptake of Immunization status**						**Timely uptake of EID services**					
	Timely immunized		Not timely immunized		**Chi-square Statistic (df)**	**P-value**	Timely immunized		Not timely immunized		**Chi-square Statistic (df)**	**P-value**
Enrolled in PSSG	**Frequency**	**Proportion (%)**	**Frequency**	**Proportion (%)**			**Frequency**	**Proportion (%)**	**Frequency**	**Proportion (%)**		
Yes	286	91.4%	27	8.6%	8.87(1)	0.003**	298	95.5%	14	4.5%	28.9(1)	<0.001**
No	**12**	70.6%	5	29.4%			**7**	58.3%	5	41.7%		

*Key: ** Significant P-Value*

Social cultural factors: According to the study, disclosure of HIV Status to someone motivated majority respondents 169 (54.2%) while other peoples' positive perception as a major motivation to 197 (63.2%) respondents.

"After the woman is tested HIV positive, we encourage her to disclose her status to

people close to her and by seeing we the mentor mothers living positively, they get motivated and are empowered to continue to bring their babies for follow up with the aim of having them HIV negative at exit from PMTCT program" key informant report from a mentor mother. Majority of the respondents disagreed with the influence of opinion of sexual partner, family members and influential community members as a motivation to seek HEI services at 272 (87.2%).

Motivation to seek HEI services: Another majority 280 (90%) disagreed being motivated to seek HEI services by opinion of family members and 298 (94.9%) by opinion of influential community members.

Table 8

Motivation to seek HEI services

Motivation to seek HEI services	Disagree	Agree	
	Freq (%)	Freq (%)	N
1. Disclosed HIV Status to someone	143 (45.8%)	169 (54.2%)	312
2. Other Peoples' Positive Perception	115(36.9%)	197 (63.2%)	312
3. Opinion of Sexual Partner	272 (87.2%)	40 (12.8%)	312
4. Opinion of Family members	280 (90%)	31 (10%)	311
5. Opinion of influential community members	296 (94.9%)	16 (5.1%)	312
6. Access to information during adherence counselling	2 (0.6%)	310 (99.2%)	312
7. Quality of Care	4 (1.3%)	308 (98.7%)	312
8. Interaction with mentor mother	3 (0.9%)	307 (99%)	310

Denial of the positive HIV status, self-stigma and stigma from the community and from the health care providers was cited during the key informant interview where one health care provider said; "some clients claimed to feel stigmatized from staff around the facility and from other patients who are not HIV infected who are seeking child welfare services in the clinic and who knew that the PMTCT room is for follow up for the HIV-Exposed infants" PMTCT nurse during the key informant interview.

Stigma and Discrimination was identified as a hindrance to HEI service uptake by 53.9% of the respondents. Negative attitudes and beliefs on HIV infection was cited a barrier by 38.5%.

Male partner and community involvement: Of the 314 participants that disclosed 262 (83%) disclosed to their male partners while 52 (17%) did not. Of the 52 participants who had not disclosed to their male partners, 50 (96%) disclosed to a family member while 2 (4%) disclosed to a friend. A total of 67 (26%) had disclosed to both male partners and another family member. Majority (96.6%) of the women who disclosed their HIV status

to the male sexual partners reported to have gotten support to take up PMTCT services.

Social cultural factors against HEI services uptake: The chi-square test on the respondents who had disclosed their HIV status to their male partners showed significant statistical association (X2 =6.88, P=0.009); Table 9.

Table 9
Social cultural factors against HEI services uptake

Social cultural Determinants	**Timely uptake of Early Infant Diagnosis services**					
	Timely initiated		Not timely initiated		**square Statistic (df)**	**P-value**
Disclosed HIV status to male partners	**Frequency**	**Proportion (%)**	**Frequency Y**	**Proportion (%)**		
Yes	257	97.70%	6	2.30%	6.88	0.009**
No	59	90.8	6	9.20%		

DISCUSSION

The survival of HIV-exposed children, whether or not they are infected, is closely linked to the health and survival of their mothers. Therefore, long-term benefits of PMTCT programs will only be sustained if there is ongoing comprehensive care for the children and their mothers. This study aimed at determining the maternal, psycho social and social cultural factors that influence uptake of HEI services. The study identified various factors as having significant association with uptake of HEI services. A number of socio-demographic, cultural and economic factors were found to significantly influence uptake of HIV-Exposed services uptake. They included maternal age, marital status, education level and occupation. Women aged 30 years and above were the majority who sought HIV-Exposed infants' services as compared to women aged below 30 years. Married women were more likely take their exposed infants for services in a timely manner. This was ultimately linked to the decision maker on choice and support. It was found that sexual partners had a great influence in seeking of HEI services. This finding compares well to a study done by WHO which states that women need permission in seeking care during pregnancy, childbirth and postpartum period (12).

In Nakuru County levels of education progressively decreases up the education ladder. Most mothers in the study had acquired primary education which was attributed to the free primary education.
Women with post primary education have the knowledge to make informed decisions on their own and their exposed infants' health services. The findings coincide well with a study that found out that women's education or literacy levels are strongly associated with use of reproductive health and maternal health services (13).

HIV-Exposed services uptake was highly demonstrated in the study. This included early infant diagnosis (EID) and routine childhood immunization. Majority of the infants had their initial HIV diagnostic test for early infant diagnosis (EID) at 6-8 weeks.

Most of the exposed infants were enrolled for follow up below the age of two months thus timely interventions were instituted. The eligible study population had immunization given within three days, which was considered timely according to the study. The findings are in line with the recommended national HEI follow up standard by the Ministry of Health in Kenya (1).

In the current study, disclosure of HIV status had been done by majority of respondents. Of the participants that disclosed their status, (83%) disclosed to their male partners. Of the 52 participants who had not disclosed to their male partners, 50 (96%) disclosed to a family member while 2 (4%) disclosed to a friend. The findings were similar to United Nations General Assembly Zimbabwe's country report of 2007 on HIV and AIDS which stated poor disclosure of HIV status by women to significant others (husband/ partner, in-laws, siblings or friends) as one of the major challenges in the PMTCT programme.

This was also similar to findings by Zimbabwe Ministry of Health and Child Welfare where HIV status disclosure served as an important prevention strategy in PMTCT by enabling PMTCT attendees to benefit by being able to use ART prophylaxis, practice safe infant feeding and family planning practices (9). Similar findings were observed in a study where women who kept their status secret found it challenging to store and take medications (14).

Timing of HIV diagnosis in relation to PMTCT service uptake is of great importance. Respondents who were diagnosed with HIV after last pregnancy were the least in comparison to those diagnosed during or before the last pregnancy. These findings are similar in the current study and KAIS report (15). This meant that the timely diagnosis of HIV positive in pregnant women enhanced seeking of PMTCT services thus HEI service uptake. Successful PMTCT outcomes are based on broad psycho-socio support group objectives (7). The current study found statistical significant association between timely immunization uptake as well as timely uptake of EID services among women enrolment into a psycho-social support group. These findings concur with a study which stated that psychosocial support from peers helped women adhere to PMTCT program recommendations (16).

Both accesses to information and interaction with a mentor mother motivated mothers to seek HEI services (17). The findings concur with the current study. According to the study, majority of the respondents had heard of a Psycho social support group with most of them enrolled in the psycho social support groups. The main source of information was mentor mothers. Access to information during adherence counselling, quality of care and interaction with a mentor mother highly motivated clients to seek HEI services. Other Peoples' Positive Perception has been reported to motivate respondents to seek services with social factors playing a major role (18). However, in the current study majority of the respondents disagreed that influence of opinion of Sexual Partner, family members and influential community members motivated them.

Peer and family influences have been shown to be particularly important determinants of PMTCT involvement; with lack of partner support reducing the likelihood of a woman engaging with services (19). The findings concur with the current study as majority of the women who disclosed their HIV status received overwhelming support. Male partner and community involvement have been found to provide psychosocial support and eventually improving retention of clients in PMTCT program. (20).

Non-disclosure makes it more difficult for women to adhere to PMTCT guidance; as opposed to situations where male partners were aware of ARV prophylaxis was being provided to an infant, where adherence was higher (21).

In the current study the similar findings were observed where the respondents who disclosed their HIV status to the male sexual partners reported getting support to take up HEI services. Those who had disclosed their HIV status had their babies having timely early infant diagnosis (EID) at 6-8 weeks and their babies received relevant immunized as per age. Similar findings were observed in other studies with disclosure to partners making it more likely that HIV-positive mothers would follow infant feeding recommendations (22)

CONCLUSION

Among the women interviewed in the study, maternal characteristics including marital status demonstrated influence in timely HIV-exposed service uptake. Those with advanced age of above 30 years, with high education sought HEI services in large numbers. Psychosocial factors influenced timely HEI service uptake of immunization and EID services among the study population. The social cultural factors which enhanced HEI services uptake in the study included male involvement in PMTCT program.

The Study had three null hypotheses that stated that there is no relationship between maternal determinants, psychosocial and social cultural factors and uptake of routine HEI services.

This study found out that maternal characteristics, psycho-social and social cultural factors influenced timely HEI service uptake making them alternative hypotheses thus rejecting the three null hypotheses.

RECOMMENDATIONS

We recommend to the Ministry of Health and the partners, that there is a need for promotion of PMTCT psychosocial support groups among all HIV positive women so as to increase the timely uptake of the HEI services in the region.

ACKNOWLEDGEMENT

The management of Nakuru County Referral Hospital for allowing the study to be conducted in the Institution, staff and the research assistants who participated in the study. Appreciation also goes to Dr. Jamlick Mutugi for his technical support during the study period.

REFERENCES

1. MOH, 2012. Guidelines for prevention of mother to child transmission (PMTCT) of HIV/AIDS in Kenya. Nairobi: MOH.
2. UNAIDS/WHO/UNICEF. 2010. Towards Universal Access: Scaling up Priority HIV/AIDS Interventions in the Health Sector Progress Report. Available at: http://www.who.int/hiv/pub/2010progressreport/ report/en/index.html. Accessed 1/8/2014
3. Marinda, E., Humphrey, J.H., Iliff, P.J. et al.Child mortality according to maternal and infant HIV status in Zimbabwe. Paediatric Infectious Diseases Journal, 2007.26:519–526.
4. Shapiro, R. L., Lockman S., Kim S. et al 2007. Infant morbidity, mortality, and breast milk immunologic profiles among breast-feeding HIV-infected and HIV-uninfected women in Botswana. Infectious Diseases Journal. 196:562–569. Retrieved 3/9/2014

5. WHO. 2013, October 9. Implementation Research Platform- Bringing Effective Innovations to Practice through Research. INSPIRE INIATIVE, p. 2. Retrieved March 12, 2014, from http://www.implementationresearchplatform.org/inspire#. Uzf1Fc5dr1V
6. Kenya National Bureau of Statistics and ICF Macro. 2010. 2008–09 Kenya Demographic and Health Survey: Key Findings. Calverton, Maryland, USA: KNBS and ICF Macro.
7. Viadro, C. et al. 2008. Mother's Support Group in Ethiopia; A peer support model to address the needs of women living with HIV. Intra Health International. Retrieved February 18, 2014.
8. Sugandhi, N., Rodrigues, J., Kim, M. et al. 2013. HIV-exposed infants: rethinking care for a lifelong condition. AIDS. Suppl 2: S187-95. doi: 10.1097/QAD.0000000000000090. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/24361628. On 4/9/2014
9. MOHCW, 2009. Zimbabwe Ministry of Health and Child Welfare (MOHCW). National psychosocial support training manual for children living with HIV and AIDS. Harare, Zimbabwe.
10. Chima, I.P. 2010, July. Strategies for Integrating Psychosocial Support Interventions into HIV Prevention, Care and Treatment Services. Retrieved March 26, 2014, from Elizabeth Glaser Paediatric AIDS Foundation: http://pdf.usaid.gov/pdf_docs/pnadx097.pdf
11 Cochran, W. 1977. Sampling Techniques (3rd ed.). New York: John Wiley & Sons Inc.
12 World Health Organization, (2006). Making a difference in countries: Strategic Approach to Improving Maternal and Newborn Survival and Health. Ensuring skilled care for every birth.
13 Harun, S. Shelmith, M and Muia, D.M., (2012). Persistent Utilization of Unskilled Birth Attendants' Services among Maasai Women in Kajiado County, Kenya. Doi: 10.5923/j.phr.20120206.07.
14 Wouters, E., van Loon, F., van Ransburg, D. and Meulemans, H. 2009. Community support and disclosure of HIV sero-status to family members by public-sector
15 Antiretroviral treatment patients in the Free State Province of South Africa.
16 AIDS Patient Care STDs. 23(5): 357_64.
17 KAIS, (2012). 2014 Final Report
18 Kalembo, F. W. and Zgambo, M. 2012. Loss to Follow-up: A Major Challenge to Successful Implementation of Prevention of Mother-to-Child Transmission of HIV-1 Programs in Sub-Saharan Africa. International Scholarly Research Network, 2012, 1. doi:10.5402/2012/58981.
19 Baek, C. and Rutenberg, N. 2010. Looking backward, moving forward: implementing PMTCT programs in resource-constrained settings, Horizons studies. 1999–2007, Horizons Synthesis Background Papers, Population Council, Washington, DC, USA.
20 Roura M., Busza J., Wringe A. et al .2009, March. Barriers to sustaining Antiretroviral Treatment in Kisesa, Tanzania: A follow up study to understand attrition from the Antiretroviral Program. AIDS Patient Care STDS, 23(3), 203-210. doi: 10.1089/APC 2008129
21 Tchendjou, P. T., Koki P. N., Eboko F. et al. 2011. Factors associated with history of HIV testing among pregnant women and their Partners in Cameroon: baseline data from a Behavioural Intervention Trial (ANRS 12127 Prenahtest). J. Acquir. Immune. Deficiency. Syndrome. 57 Suppl 1: S9–15.
22 Lettow, M.V., Bedell, R., Landes, M. et al. Uptake and outcomes of a prevention-of mother-to-child transmission (PMTCT) program in Zomba district, Malawi. BMC

Public Health. 2011:11 article 426. Retrieved 3/9/2014.

23 Peltzer, K., Mlambo, M., Phaswana-Mafuya, N. and Ladzani, R. (2010). Determinants of adherence to a single-dose nevirapine regimen for the prevention of mother-to-child HIV transmission in Gert Sibande district in South Africa. Acta Paediatr. 99(5):699–704.

24 Bii, S.C., Otieno-Nyunya, B., Siika A. and Rotich J.K. 2008. Infant feeding practices among HIV infected women receiving prevention of mother-to-child transmission services at Kitale District Hospital, Kenya. East. Africa. Med. J. 85:156-1