East African Medical Journal Vol. 95 No. 1 January 2018
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FACTORS INFLUENCING ANTI-RETROVIRAL THERAPY UPTAKE AMONG HIV POSITIVE AND EXPOSED CHILDREN AGED BELOW 14 YEARS IN MERU NORTH DISTRICT, KENYA

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ABSTRACT

Background: **Anti-retroviral Therapy (ART) is a major intervention for children infected and exposed to HIV infection and it influences their morbidity and mortality.**

Objective: **To investigate factors influencing ARV uptake in HIV positive and exposed children aged below 14 years in Meru North District.**

Design: **A descriptive cross-sectional study.**

Setting: **The Nyambene District Hospital, Miathene Sub - District Hospital and Maua Methodist Hospital paediatrics comprehensive care clinics (PCCC) in Meru North District.**

Subjects: Parents or guardians with children less than 14 years of age exposed or infected with HIV who visited the selected health facilities.

Results:

About 222 caregivers were interviewed with mean age of 38.4 + 10.3 years ranging from 21 to 70 years. About 120 (54.0%) were aged between 30 to 39 years, Most of the caregivers 106 (47.7%) had acquired education up to primary level. Marital status of the caregivers revealed that 104 (46.8%) were married while 16 (6.3%) were cohabiting. Relationship between children ARV uptake and marital status of caregiver was significant (OR= 2.1, 95% C.I= 1.0 – 4.6, P=0.050). Significant association between source of medical advice and children ARV uptake (P<0.05) was evident.

Conclusion: **Achieving widespread public health benefits of ARV roll-out requires community - level interventions in marriages and information distribution to ensure local acceptability of antiretroviral drugs. Better management and improvement of health status of HIV exposed and infected children will be enhanced by improved ARV uptake.**

Recommendation: **The study recommends integration and decentralization of ARV services through social supports, encouraging disclosure of HIV statuses for**

positive living and enhanced ARV uptake and enhanced awareness creation on ARVs and HIV information to caregivers at all levels.

INTRODUCTION

Paediatrics HIV, ARVs and AIDS is a major cause of infant and childhood morbidity and mortality in Africa. Children under five years of age with HIV and AIDS now accounts for 7.7% of mortality worldwide. AIDS already accounts for a rise of more than 19% in infant mortality and a 36% rise in under five mortality and together with factors such as declining immunization, HIV and AIDS is threatening life and well-being of children and infants (1). In industrialised countries in North America and Europe, paediatric HIV infection has largely been controlled otherwise in these settings, HIV testing is part of routine antenatal care, combined with appropriate antiretroviral drug regiments, elective caesarean section, health education, HIV counselling and complete avoidance of breast-feeding have translated into HIV mother-to-child transmission rates of less than 2% (2,3). In Africa, on the other hand, high rates of maternal HIV infection, high birth rates, lack of access to currently available and feasible interventions like ARVs and widespread practice of prolonged breast-feeding have translated into a high burden of paediatric HIV disease. Transmission risk for a child born to HIV-infected mother in an African setting without ARV and other interventions stands at 30 – 40% and in most of sub-Saharan Africa there are limited paediatric HIV diagnostic and care facilities. Most HIV-infected children, like adults, are diagnosed and managed very late in the course of HIV and AIDS illness, or not at all (4, 5). Efforts to expand care and ARV treatment for children have rapidly improved uptake of available child health interventions for reducing paediatric HIV infection in industrialized countries. These interventions reach less than 10% of the population in the sub Saharan African countries that are most affected. The challenges cited for paediatric ART in other countries in the region includes; health policies, lack of sufficiently trained health care personnel, and inadequate facilities, complexity of drug regiments and formulations. Therefore access to currently available, effective care and treatment options has also been a major obstacle. These factors make it difficult for children to be identified and referred into appropriate HIV and AIDS care services (6).

MATERIALS AND METHODS

Study design and site: This was descriptive cross-sectional study. Conducted in Meru North District to determine factors influencing ARV uptake at the Nyambene District Hospital (NDH), Miathene Sub - District Hospital (MSDH) and Maua Methodist Hospital (MMH) paediatrics comprehensive care clinics (PCCC). The parents and guardians of children aged less than 14 years exposed or infected with HIV were recruited as they visited selected health facilities. A questionnaire, Key Informant Interview and Focused Group discussion guides were used to obtain information from the study subjects.

Study population: About 222 caregivers (parents and guardians) of children aged below 14 years attending Paediatric Comprehensive Care Clinic (PCCC) were enrolled from the sampled study sites.

Sampling: The study enrolled a total of 222 participants who gave informed consent. These were parents/guardians with their children.

Ethical considerations: The study protocol was reviewed and approved by Maseno University Ethics Review Committee prior to commencement of the study. Participants

were asked to give written informed consent for them to participate in the study and participation was entirely voluntary. No invasive procedures were carried out and no adverse events were experienced during the study.

Statistical analysis: The data were analyzed using statistical package for social scientists (SPSS/PCTM) software. The data on etiology was analyzed using descriptive statistics and results expressed as rates and proportions. Chi square test and Odds ratio were used to test the associations of factors influencing uptake of anti-retroviral drugs among children. P-value of less than 0.05 was considered significant.

RESULTS

A total of 222 caregivers were interviewed and information about their children recorded. Recruited from three paediatric comprehensive care clinic (PCCC) study sites namely; NDH PCCC 89 (40.5%), MMH PCCC 104 (45.5%) and MSDH PCCC 29 (14.0%). Among the caregivers, 24.3% were males and 75.7% were females. Their mean age of 38.4 + 10.3 years ranging from 21 to 70 years.

Age of caregivers

Among the 222 interviewed caregivers 30 (13.5%) were aged between 20 and 29 years, most of them 120 (54.0%) were aged between 30 to 39 years, 45 (20.3%) between 40 to 49 years, 12 (5.4%) between 50 to 59 years, while 15 (6.8%) of that were aged 60 years and above.

Place of Residence

Majority of the children caregivers 174 (78.4%) resided in rural area, while 31 (14.0%) resided in urban settlement, while about 17 (7.6%) declined to disclose their residence. Household family size varied between 1 and 14 members per household. (13.1%) of the households had 1 to 2 members. Over 123 (50.0%) of the households had 3 to 4 members, followed by 54 (24.3%) with 5 to 6 members, while 16 (7.2%) had more than 6 members.

Caregiver's level of Education

Caregiver's level of education varied from those who have never attended school to the highest tertiary/college education, 41 (18.5%) of the caregivers had never gone to school. Most of the caregivers 106 (47.7%) had acquired education up to primary level, followed by 54 (24.3%) with secondary and 21 (9.5%) had Tertiary/college education as shown in Figure 1. *"According to focused group discussions (FGDs) done with a psychosocial support group it concurs with above that the level of education is not a key determinant of ARV uptake, most caregivers were confirmed to have basic education".*

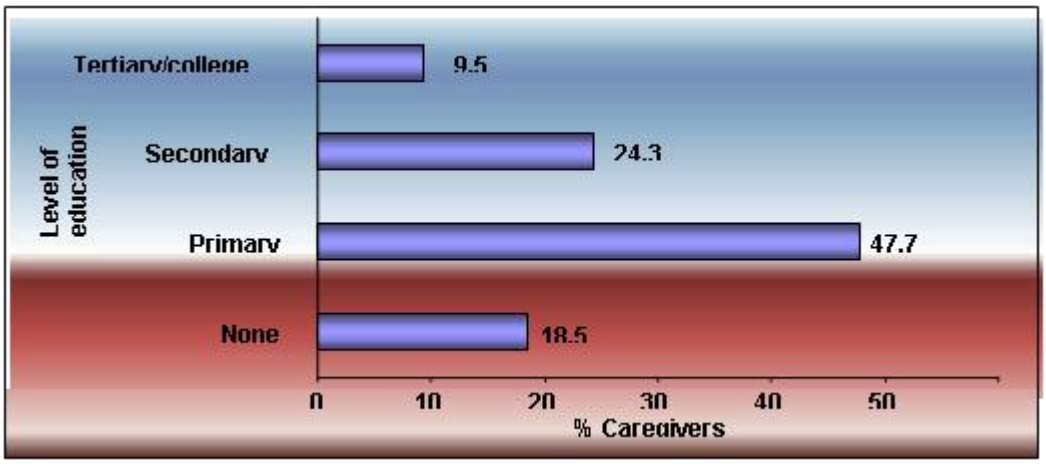

Table 1

Socio-demographic Characteristics of the Caregivers

Characteristics	**N=222**	**%**
Sex:		
Male	54	24.3
Female	168	75.7
Age in years:		
20 – 29	30	13.5
30 – 39	120	54.1
40 – 49	45	20.3
50 – 59	12	5.4
60 and more	15	6.8
Place of residence:		
Urban or Estate	31	14.0
Rural	174	78.4
Others /declined	17	7.6
Family Size		
1 – 2	29	13.1
3 – 4	123	55.4
5 – 6	54	24.3
More than 6	16	7.2
Education level:		
Never attended school	41	18.5
Primary	106	47.7
Secondary	54	24.3
Tertiary/college	21	9.5
Marital status:		
Single	14	6.3
Married	104	46.8
Cohabiting	6	2.7
Cohabiting with married	8	3.6
Divorced	38	17.1
Widowed	48	21.6
Declined to answer	4	1.8
Relationship to the child:		
Parent	170	76.6
Relatives	47	21.2
Other Guardians	5	2.3

Relationship between Socio-demographic Factors of the Caregivers and Children ARV Uptake

Selected demographic characteristics were analyzed to establish whether or not they were significantly associated with children ARV uptake. Relationship between children ARV uptake and age of caregiver was not statistically significant at any age category with reference to age category 20 – 29 (P=0.17). Although not statistically significant, children whose caregivers were in age category 40 – 49 years were twice more likely to uptake ARV treatment compared to the other age categories (OR = 2.2, 95% Cl = 0.7 – 7.8, P= 0.2). Similarly, children under care of guardians rather than biological parents were 1.5 times more likely

to uptake ARVs (OR = 1.5, 95 % Cl = 0.6 -3.9, P = 0.4).

The ARV uptake was not dependent on age of the Childs caregiver, sex of care giver, educational level of the care giver and the Place of residence. However, children whose family size was >5 were 5 times likely to uptake ARV (35% Verses 11%) than smaller families (OR 5.3, (5% C l= 1.2-24, p- 0.01). Similar results were obtained from caregiver who were married (OR 2.1 95 % C l =1-4.6, P = 0.05) implies that a larger family size and marital status were significantly associated with ARV uptake.

DISCUSSION

The study of 222 caregivers sought to establish factors associated with low ARV uptake in children aged below 14 years in three selected study sites in Meru North District. Most of the respondents 168 (75.7%) were females with an overall mean age of 38.4 ± 10.3. Though not statistically significant, age remains an important factor in care of HIV infected and exposed children as shown from findings of this study that the higher the age of the caregivers of the child the more they are likely to uptake ARV. This is corroborated by information from various studies (7, 8) that revealed that teenage caregivers were faced by complex problems ranging from family rejection, social stigma, school drop-outs, financial constraints, lack of adequate knowledge on parental care, which significantly complicates care given to the HIV infected child. This is because younger mothers are less likely to attend obstetric and antenatal clinics, where they would be educated on childcare than their older counterparts. The marginal significance noted in relationship between marital status and ARV uptake by the child revealed that a child in a married relation had higher likelihood of ARV uptake compared to those in non-married households.

This is supported by the fact that social support within the family plays an integral role in ensuring that the child gets prompt and adequate medical care. Findings from a study in Thailand indicate that there was a higher probability of child abandonment in cases where there was no family or community support (9).

The findings of this study indicating that a child's age is not significantly associated with ARV uptake are inconsistent with findings by other studies which shows that non-adherence was significantly associated with older child age (10-13). Other studies indicate that children are more adherent when receiving medications from foster parents than biological parents (14, 13,15, 16, 17), this further explains that treatment by biological parents often acts as a reminder of the parents' guilt on their role of the child's acquisition of the HIV infection thereby confounding the non-adherence effect which corroborates findings of study that children under care of relatives/other guardians were 1.5 times more likely to uptake ARVs compared to those under care of biological parents.

Education level of the caregiver though not significantly associated with ARV uptake by children, 106 (47.1%) of caregivers had acquired up to primary education and the likelihood of ARV uptake increased with increase in educational level. According to these findings therefore level of education of caregiver was associated with lower use of health care services including antiretroviral drugs and this agrees with findings by (2, 11, 16) that lack of caregivers knowledge factors are more pronounced in Sub-Saharan Africa further compounding the difficulties of ARV up take among children. This is further supported by the Central Bureau of Statistics (18) that mother's education was a more decisive determinant of child survival than other family characteristics such as husband's occupation and education.

Data from socio-economic factors revealed that employment status was inversely related to the uptake of ARVs by children though not consistent with existing findings (18, 19) especially in Sub-Saharan Africa where stable economic status is often associated with improved quality of life, living standards and medical care (20). The inability of most families to obtain medical care including ARV uptake among children is mostly dependent not only on employment, but also the household's monthly income and by extension results from this study indicates that most caregivers 129 (58.1%) lived on less than Kshs. 200.00 per day which is consistent with the Yolanda and others, (21, 20, 22) indicating that most households in Sub-Saharan Africa and Kenya respectively earned less than a dollar per month and which had a direct impact on the ability to afford medical care inclusive of ARV uptake. It is evident from this study that majority of the caregivers spent between Kshs. 140.00 and 200.00 on transport costs alone thereby increasing inaccessibility to anti-retroviral therapy (ART) services. Therefore, there is subsequent increase in financial burden on the family's meager resources with ultimate negative impact on ARV uptake.

This findings conquers with studies by USAID/Population Council and others (23, 20, 24, 25, 26) that resource poor settings present unique challenges to uptake and adherence to ART. The cost of medical care, drugs, and difficulty of making follow-up appointments due to long distances, family responsibilities, and prohibitive cost of transportation adds to challenges of ARV uptake.

Data generated from socio-cultural factors revealed that ARV uptake was not dependent on reaction of house members, socio-support to caregivers, coping strategies and breastfeeding practices. This concurs with findings from other studies which indicates that paediatric antiretroviral adherence is not related to gender, age, and race, child's caregiver knowledge of HIV status, structural social support, satisfaction with social support, or health status /virologic or immunologic factors (15, 26, 11, 27, 28, and 14). However, there was a significant relationship between ARV uptake and the source of medical advice and advice to take the child for treatment. Those that received medical advice from health workers were 3.7 times more likely to uptake ARV compared to those that received advice from other sources. This is consistent with a qualitative study conducted in Ethiopia, that use of qualified health care providers in addition to appropriate approach and communication to caregivers enhanced ARV uptake and adherence to ART (29). Majority of respondents received negative reaction from both nuclear and extended family members after revealing their child's HIV status. These findings were not significant; it was evident that children whose house members received positive reaction were 1.4 times more likely to take ARV compared to those that had negative reaction, this agrees with a study by (30, 31, 32) that in Kenya, social stigma was identified as a significant impediment to ARV uptake. Generally, care of HIV infected persons is mostly influenced by issues such as discrimination, isolation and disclosure.

CONCLUSION

That majority 168 (75.7%) of the respondents were females and the mean age was found to be 38.4±10.3. ARV uptake was 143 (85%) female, married respondents and respondents whose family size was 3-4 respectively. This is greatly attributed to the fact that most respondents had considerable social support within the family compared to non-married respondents and those who had smaller family size. This fact is supported by the evidence that communal,

medical and family supports for caregivers in addition to sharing of household chores plays a crucial role in ensuring that sick child or family member gets immediate medical care.

Socio-economic factors negatively influences uptake of ARVs by respondents since majority of them earn less than or equal to Kshs. 200 and the amount spent on transport alone is Kshs. 140 – 200 which confirms that most households in Sub-Saharan Africa live below the poverty line earning less than one dollar per day. This hardly sustain the basic necessities of family, further confounding the inaccessibility to medical care including ARV uptake, hence the inverse relationship between employed and non-employed.

That child's relationship to the caregiver impacts both positively and negatively to ARV uptake, uptake of ARV in children with their biological parents appeared to be poor compared to those being taken care of by relatives and other guardians because ARV treatment acts as a constant reminder of the biological parents' "guilt" to the child's acquisition of the HIV infection.

Source of medical advice influences uptake of ARV, with those getting it from healthcare workers having a higher ARV uptake compared to those getting information from other sources, medical advice by health workers to caregiver's increases child caregivers' awareness on HIV infection or exposure hence positively enhancing ARV uptake and adherence.

RECOMMENDATIONS

Social support groups and community resource persons should be integrated in care and treatment of HIV and AIDS infected and exposed children and this can be incorporated into Comprehensive Care Centre services like the Post-Test Clubs, which has greatly enhanced the uptake and adherence to ART and the reduction of social stigma by family members and the community at large with decentralization of comprehensive care to lowest level is vital to mitigate uptake of ARV.

Disclosure should be encouraged because it significantly reduces stigma and positively impacts on positive living among caregivers of children living with HIV and in turn greatly enhance uptake and adherence of ART in all HIV and AIDS clients with resultant reduction of HIV and AIDS economic burden.

Intensify creation of awareness on the significance of child ARV uptake, available facilities and other ART services offered by health care providers since most people in society have faith and take medical advice from qualified practitioners to reduce stigma and promote family and community support for children living with HIV and AIDS.

ACKNOWLEDGEMENTS

I would like to thank all the staff at MoH Nyambene region and Maua Methodist Hospital health facilities, particularly Medical officers of Health, DASCOS, Nurses, Clinicians and Community Health workers who assisted in the data collection for this study. I also thank the study subjects from the three study sites for their participation in the study. Last but not the least many thanks goes to Mr Mwangi of CPHR Kemri and Symekher Samwel who provided the valuable technical input to this work.

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