

Determinants of HIV/AIDS Disclosure in Pediatrics Age from 5-14 Years on ART in South Wollo, North East Ethiopia, 2019: An Un-matched Case-Control study

Wolde Melese Ayele^{1*}, Seid Fentaw Getahun² and Mastewal Arefayne Temesgen³

¹Department of Epidemiology and Biostatistics, School of Public Health, Wollo University, Dessie, Ethiopia

²Dessie referral Hospital, Dessie, Ethiopia

³Department of Reproductive Health, school of Public Health, Wollo University, Dessie, Ethiopia

Abstract

Background: One of the most difficult issues that families with HIV-infected children and their medical providers face is disclosing their HIV status to their child. Despite emerging evidence of the benefits of disclosure, its prevalence is low, and the predictors for non-disclosure remain clinical dilemma. Therefore, this study aimed to explore determinants of HIV status disclosure among 5-14 years age children in Dessie town, Ethiopia.

Methods: Health facility based unmatched case-control study was conducted from January 1 to February 30, 2019. Interviewer based questionnaire was used for data collection from a total of 387 children on ART /care givers pairs. Bivariable and multivariable logistic regression analysis were carried out using SPSS version 23 software.

Result: A total of 374 children/caregiver pairs were included in the study, making 96.6% response rate. In multivariable logistic regression model, presence of organizational support (AOR=27.77, 95% CI: 12.472, 61.819), child age of 10 to 14 years (AOR= 3, 95% CI; 1.423, 6.536) and conducting of discussion with health care providers (AOR=17.65, 95% CI; 6.611, 47.002) predicted children's HIV disclosure status.

Conclusion: Presence of organizational support, child age of 10 to 14 years, and care givers discussion with health care providers were statistically significantly associated with HIV status disclosure. Further qualitative and community based research may reveal more on these and other factors; organizational support strategy may address some of these determinants.

Keywords: Paediatric HIV • Disclosure • Caregiver-child pair • Ethiopia

Introduction

Disclosure of paediatrics HIV status to HIV-infected children is telling children their diagnosis of HIV virus and the purpose of medication they take, which requires good preparation, communication techniques, and appropriate counselling [1]. Disclosure of the diagnosis of HIV infection to HIV-infected children has become a more common clinical dilemma. It is one of the most difficult problem that families and their medical providers facing [2,3].

United Nations joint HIV/AIDS program (UNAIDS) 2017 report shows that 1.8 million people became newly infected with HIV, 940,000 people died from AIDS-related illnesses [4].

There is a significant improvement in ART coverage among children; however it is still not satisfactory. At the end of 2016, it was estimated that only 43% of children aged <15 years living with HIV/AIDS were receiving ART. Without treatment, 50 percent of HIV-positive children will die before their second birthday, and 80 percent before turning 5 years of age [5]. More than 180,000 children were infected with HIV in 2017 [6,7]. The number of persons requiring ART stands at 718,498 in 2009 EFY (Ethiopian Financial Year) out of which 426,472 (59%) is currently receiving treatment [8].

***Address for Correspondence:** Wolde Melese Ayele, Department of Epidemiology and Biostatistics, School of Public Health, Wollo University, Dessie, Ethiopia, Tel: +251921885231; E-mail: Wolde400@gmail.com

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Paediatrics HIV status may have affected by pertinent factors like demographic factor of care giver, demographic factor of the child, socio cultural factors, clinical factors and program related factors are most common. The disclosure to children has also shown to be associated with positive familial relationships, better psychosocial adjustment and increased adherence to treatment [9].

Materials and Methods

Study setting and subjects

The study was conducted in five public health facilities which providing children ART care service, Dessie, Ethiopia. These institutions are Dessie referral hospital, Borumeda hospital, Buanbua health center, Segno gebeya health center, and Dessie health center. The children at the clinic either have mothers already known to be HIV seropositive during pregnancy through the program for the Prevention Of Mother-To-Child Transmission (PMTCT), are discovered to be infected with HIV after presenting with an AIDS-defining illness, or are diagnosed after either a symptomatic fraternal or parent was found to be HIV positive.

The care givers were identified through the Paediatric HIV/AIDS Care program. Over the period of the study, January to February, 2019, all the families attending the clinic with children aged 5-14 years were offered to participate.

All participants gave informed consent in order to participate and child participants required both caregiver consent and child assent. There was no stipend given to participants, instead participants were given the opportunity to refuse or withdraw from the study at any point. The study was approved by the Wollo University, College of Medicine and Health Sciences Review Committee.

Study design

Unmatched case-control study was conducted from January to February 2019 to determine factors associated with HIV infected children (5-14 years old) disclosure status.

Definitions

Case: 5-14 years age child who disclosed his/her HIV positive status.

Controls: 5-14 years age child who did not disclosed his/her HIV positive status during study period.

Disclosure: Where the caregiver said that the child knows his/her HIV diagnosis.

Non-disclosure: Where the caregiver said that the child does not know his/her infection.

Caregiver: A person who lives with the child, participates in the child's daily care and is presented along with child's health care during data collection. They were either biological parents or guardians acting as surrogate parents to the child.

Sampling procedures

Cases and controls were selected from their follow up chart based on their HIV status disclosure status. Sample size in each facility was allocated based on the numbers of children on ART service. Five ART providing health institutions found in the region were selected in simple random sampling, lottery method.

Data processing and analysis

Data were collected by eight trained data collectors and supervised by two supervisors. Data were collected using an interviewer-administered questionnaire. The data were entered using Epi Data version 4.2.1 statistical package and analyzed with SPSS version 23. In the bi-variable logistic regression analysis variables with p-value less than 0.2 were fitted to the final multivariable logistic regression model. Hosmer and Lemeshow goodness of test was considered for model fitness, p-value >0.05 as cut point. A multi-variable logistic regression analysis was performed to control possible confounders. Factors associated with disclosure were described using Odds Ratio (OR) and Confidence Interval (CI) to test the presence and strength of association.

Results

Socio-demographic characteristics of caregivers & children pairs

A total of 374 children and care givers pair were included in the study, making 96.6% of response rate. One hundred thirty-eight (36.6%) and 236(63.10%) of care givers were cases and controls respectively. Among children 49(35.5%) of cases and 74(31.35%) of controls were females. The mean age of the children was 10.3 (SD \pm 2.46) years. Concerning care givers educational status, 24(17%) of cases and 50(21.18%) of controls were unable to write and read (Table 1).

Clinical characteristics of caregivers and children

Among care givers, 116(84%) of cases and 176(74.57%) of controls were HIV sero-positive. Out those whose HIV sero-positive care givers, almost all of cases and controls were started Anti-Retroviral Treatment (ART). Regarding children, 58 (42.03%) of cases and 112(47.45%) of controls were diagnosed with opportunistic infections during the study period. Ninety-six (69.56%) of cases and only 20(8.47%) controls had organizational support (Table 2).

Determinants of HIV disclosure

In bi-variable analysis six variables; care givers educational status, organization support, discussion with health care worker, care giver relation to the child, child age, and distance from home to ART sites were eligible for the multivariable logistic regression analysis. In multivariable logistic regression model, organization support, child age, and care giver discussion with health care worker were remained statistically significantly associated with children HIV disclosure status.

Organizational support of children was found to be associated with HIV disclosure status of children. Children who had organization support were 27.77 times more likely disclosed their HIV status compared to those children had no organization support (AOR=27.77, 95% CI: 12.472, 61.819). Age of the children was also statistically significant associated with HIV status disclosure. Children aged 10 to 14 years had about three times more odds of HIV status disclosure comparing with 5 to 9 years age children (AOR= 3, 95% CI; 1.423, 6.536). Likewise, discussion with health care providers was statistically significant associated predictor with HIV status disclosure of children. The care givers who discussed with health care providers about the benefits of

Table 1. Socio-demographic characteristics of care giver and the child in Dessie city, North East Ethiopia, 2019.

Characteristics	Categories	Cases n (%)	Control n (%)
Care givers' age	18-29	19 (13.76)	37 (15.67)
	30-39	70 (50.72)	121 (51.27)
	>39	49 (35.5)	78 (33.05)
Sex of care givers	Male	89 (64.49)	162 (68.64)
	Female	49 (35.5)	74 (31.35)
Care givers educational status	Unable to read and write	24 (17.39)	50 (21.18)
	Primary (1-8)	31 (22.46)	70 (29.66)
	Secondary (9-12)	50 (36.23)	81 (34.32)
	College and above	33 (23.91)	35 (14.8)
Monthly income	<1500birr	44 (31.88)	68 (28.88)
	1600-3000birr	31 (22.46)	64 (27.11)
	>3000birr	63 (45.65)	104 (44.06)
Child age	5-9yrs	49 (35.5)	57 (24.15)
	10-14yrs	89 (64.64)	179 (75.84)
Child sex	Male	58 (42.02)	107 (45.33)
	Female	80 (57.97)	129 (54.66)
Child educational status	Not started education	4 (2.89)	39 (16.52)
	Primary (1-8)	110 (79.71)	188 (79.66)
	Secondary (9-12)	24 (17.39)	9 (3.81)
Parent/s die	Yes	40 (28.98)	73 (30.9)
	No	98 (71.01)	163 (69.06)

Table 2. Clinical characteristics of caregivers and children in Dessie City, Ethiopia, 2019.

Characteristics	Category	Case n (%)	Control n (%)
Care giver HIV status	Positive	116 (84.05)	176 (74.57)
	Negative	22 (15.94)	58 (23.73)
	Not tested	0	2 (0.42)
Care giver starts ART?	Yes	116 (100)	175 (99.43)
	No	0	1 (0.57)
Age of child at Diagnosis	0-6yrs	125 (90.58)	216 (91.52)
	7-14yrs	13 (9.42)	20 (8.47)
Other medication	Bacterium	29 (21.01)	99 (41.95)
	Anti-TB	14 (10.14)	13 (5.51)
	Multi-Vitamin	3 (2.17)	1 (0.42)
	RUTF	29 (21.01)	32 (13.56)
	No	63 (45.65)	91 (38.56)
Children's history of opportunistic infection	Yes	58 (42.03)	112 (47.45)
	No	82 (59.42)	124 (52.54)
Discussion with health care worker	Yes	132 (95.65)	110 (46.6)
	No	6 (4.34)	126 (53.39)
Organization support	Yes	96 (69.56)	20 (8.47)
	No	42 (30.43)	216 (91.52)

Table 3. Bivariate and multivariate analysis of factors associated with disclosure of HIV-positive status to HIV-infected children in Dessie town, Ethiopia, 2019.

Characteristics	Categories	Cases	Control	COR (95%CI)	AOR (95%CI)
Care giver Educational	Unable to read and write	24	50	0.82 (0.402,1.677)	0.65 (0.317,1.881)
	Primary (1-8)	31	70	0.46 (0.248,0.887)	0.51 (0.549,4.223)
	Secondary (9-12)	50	81	0.65 (0.362,1.183)	0.78 (0.29,2.011)
	College & above	33	35	1	
Organization support	Yes	96	20	24.68 (13.762,44.277)	27.77 (12.472,61.819) ^b
	No	42	216	1	
Discussion with health care provider	Yes	132	110	25.20 (10.693,59.384)	17.65 (6.611,47.002) ^a
	No	6	126	1	1
Care giver relation to child	Parent	75	125	1.057 (1.194,2.667)	0.86 (0.441,1.664)
	Other	63	111	1	1
Child age	5-9years	49	57	1	
	10-14years	89	179	1.73 (1.09-2.73)	3.03 (1.423-6.536) ^b
Distance from home	<10km	113	141	2.05 (1.45-2.89)	2.23 (0.780,6.351)
	11-30km	15	53		2.22 (0.652,7.360)
	>30km	10	42	1	1

^aModerately significant variables, ^bStrongly significant variables, COR: Crude Odds Ratio, AOR: Adjusted Odds Ratio.

HIV status disclosure were 17.65 times more likely to disclosed the child's HIV status compared with those care givers who had no discussion (AOR=17.65, 95% CI; 6.611, 47.002) (Table 3).

Discussion

This study was aimed to identify determinants of HIV status disclosure among children on ART in Dessie city. The result revealed that age of the child, organizational support, and discussion with health care providers were statistically significantly associated with paediatrics HIV status disclosure.

In this study, the odd of HIV status disclosure was three times higher among children aged 10 to 14 years compared with 5 to 9 years old. This is in line with study done in Ethiopia, and hospital based unmatched case control study done in Tanzania [10-13]. This might be due to the fact that younger children should be informed incrementally to accommodate their cognitive skills and emotional maturity [14,15]. The prominent reasons for disclosure as mentioned by caregivers were "child thought to be matured". This could be explained by

care givers may worry mentally and psychologically harm if children are too young [2,13]. Similarly, caregivers consider younger children as too young both emotionally and cognitively to their illness and the implications thereof [16]. There is also a significant decline in age at disclosure over time according to a study in the PACTG 219C [17].

As the result of this study, children who had organizational support were more odds of HIV status disclosure compared with their counter parts. This is supported by the studies in a multi-centered cross sectional study in Addis Ababa, Addis Ababa, Ethiopia, Kigali university teaching Hospital, and in low and middle income countries [2,18,19].

In the current study, care givers who had discussion with health care provider about the benefits of disclosure were 17.65 times more likely to disclose their HIV status disclosure when compared to those who did not discussed with health care worker. This finding is supported by the WHO and national guidelines of paediatrics HIV disclosure. According to the aforementioned guideline, children's HIV status disclosure should be done by discussion of care givers and health care providers depending on the child's

developmental and cognitive stage. Disclosure can be seen as a step in the process of adjusting to an illness and the life challenges it poses [13,20,21]. Moreover, the result noted is congruent with a cross sectional study conducted in Addis Ababa university, systematic review in low and middle income countries, systematic study in resource limited area, and study in North Gondar about HIV status disclosure and its factors among children, HIV disclosure among pregnant women in Northern Ethiopia [2,18,22-26].

The limitations of this study are those it employed a quantitative data collection, and the reasons for non-disclosure from the care givers' perspective did not explored. Furthermore, the study did not explore the benefits of disclosure such as adherence and clinical improvement in HIV disease. In addition, it was conducted at institution level, might not be representative of the general population. Therefore, for effective interventions, qualitative approach study is recommended.

Conclusion

In conclusion age of child, discussion with health care providers, and organizational support were the independent predictors of children's HIV status disclosure. Therefore, this study noted the need to shift the emphasis from whether or not to disclose to the HIV-infected child to providing psychological support, frequent discussion about its benefits, and age-appropriate information on the HIV status of the child.

Ethical Approval and Consent Participate

Ethical approval was obtained from ethical review committee of Wollo University, College of Medicine and Health Sciences. Verbal consent from care takers and assent from the children was obtained after careful description of the objective of the study. The questionnaire was translated in to the local (Amharic) language to facilitate their understanding. Data collection was taken place on silent place separately from children to avoid an influence on each other. Confidentiality of information collected is kept anonymously.

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Availability of Data and Materials

Questionnaire used for data collection is available from the corresponding author on reasonable request. All other necessary data are included in the manuscript.

Conflict of Interests

The authors declared that they have no competing interest

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Author's Contributions

WMA, SFG and MAT are authors involved in the design, implementation, data collection, analysis and draft the manuscript. SFG is also involved in the evaluation and was the principal investigator. All authors have read and approved the manuscript.

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