Acceptance of Couples' HIV Counseling and Testing among Pregnant Women Attending Antenatal Clinic in Likoni sub-County, Mombasa County, Kenya

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Abstract

Couples' HIV Counseling and Testing (CHCT) is an essential component of an effective response to AIDS pandemic worldwide and serves as an entry point to HIV care and support. However, it has become increasingly apparent that couples have overlooked the services yet they are too at risk of HIV infection. This study sought to determine level of acceptance of CHCT among pregnant women attending antenatal care services in Likoni sub-County, Mombasa County, Kenya. A descriptive cross-sectional study design was used with structured questionnaires and an observation checklist to collect data from couples while an interview schedule was used to solicit data from health care workers. Results showed uptake of CHCT in the study area was relatively low (33.5%). Statistically significant associations were found between CHCT and demographic factors such as education (χ^2 = 29.54; p = 0.005), marital status (χ^2 = 12.41; p = 0.010), occupation (χ^2 = 18.18; p < 0.001), income (χ^2 = 23.02; p < 0.001). In operation factors, statistically significant associations were found between CHCT and distance to health facility (χ^2 = 8.31; p = 0.040), means of transport (χ^2 = 10.28, p = 0.040), cost of transport (χ^2 = 10.92; p = 0.010), appropriateness and convenience of time allocated (χ^2 = 11.88, p <, 0.001), an individual's working hours per day (χ^2 = 14.46; p < 0.001), and education/information on CHCT (χ^2 = 5.97; p = 0.020). In HIV related knowledge, attitude and practice of couples on HIV risk behavior, significant associations were found between CHCT and prevention of discordant partners from contracting HIV (χ^2 = 53.71; p < 0.001), helping couples adhere to ART (χ^2 = 43.34; p < 0.001), helping to reduce morbidity and mortality due to HIV and other opportunistic infections (χ^2 = 48.66; p < 0.001), increasing trust among partners (χ^2 = 45.16; p < 0.001), and increasing marital cohesion among partners (χ^2 = 65.78; p < 0.001). Logistic regression revealed that determinants of CHCT were significant for married status (p < 0.001), unemployed (p = 0.020), that CHCT increases trust among partners (p = 0.020), and that CHCT increases marital cohesion among partners (p = 0.001). Based on these findings, there is need to improve awareness on CHCT to enhance positive attitudes towards couples testing.

Key Words: Antenatal clinic, HIV counselling, Couples testing, Mombasa County, Kenya

Introduction

Human immunodeficiency virus and acquired-immunodeficiency syndrome (HIV and AIDS) is still a major health concern worldwide. As by 2018, there were 37.9 million people living with HIV worldwide, of which 36.2 million were adults while 1.7 million were children; only 79% of all the people living with HIV knew their HIV status (Case et al., 2019). Sexual transmission between heterosexuals remains to be the transcendent mode of HIV transmission in sub-Sahara Africa (Donnell, 2010). This is the region where the HIV and AIDS pandemic is transcendently summed up with most of the infections occurring among heterosexual couples.

HIV testing services (HTS) or Voluntary Counseling and Testing (VCT) takes an essential part in HIV treatment, care and prevention, and has experienced very fast development since its launch. In 2012, the World Health Organization (WHO) suggested that couples or partners of expectant women in antenatal care (ANC) settings should be offered

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VCT with support for mutual disclosure (Osoti et al., 2015). Moreover, antiretroviral therapy (ART) should be offered to HIV positive partners in sero-discordant relationships, regardless of CD4 level (Irungu et al., 2016) in order to reduce HIV transmission to uninfected partners (Heffron et al., 2017).

Offering couples HIV counseling and testing (CHCT) at ANC settings provides many benefits including increasing male participation in ANC services, enhancing communication between couples about safe sex practices (Hailemariam et al., 2020), encouraging men to get tested and to know their HIV status, and preventing new HIV infections (Morfaw et al., 2013). CHCT keeps on being an imperative system for sero-discordant couples to get to HIV treatment as anticipation, whereby tainted accomplices are placed in ART therapy instantly in the wake of testing. CHCT has emerged as an important intervention aimed at preventing the transmission of HIV between sex partners, and cohabiting or married couples (World Health Organization, 2012). HIV prevention counselors can assist couples by mitigating tension and diffusing blame, providing clear and accurate prevention messages tailored to the couple's life stage and reasons for seeking CHCT services, dispelling myths about HIV transmission, discussing options for disclosure of HIV status to the couple's children, and thinking through appropriate next steps for testing children, when necessary, creating an environment that is safe for disclosure of HIV status among partners.

According to Government of Kenya (2016), there were 1,360,819 antenatal labour and delivery clients in Kenya who were tested for HIV out of these, only 63,164 male partners were tested and 2,263 were discordant couples. In Mombasa County, 57,648 mothers attended antenatal services and only 4,455 male partners were tested as couples. Out of the couples tested, 61 were discordant couples. Despite CHCT being a national guideline, few pregnant women come with their spouses for testing. In the year 2016, Mombasa County had a total of 32,419 pregnant women who attended antenatal clinic, out of which 4,455 were tested as couples, 1,998 turned out to be HIV positive and 61 were discordant couples (Government of Kenya, 2017). Likoni sub-County had a total of 4,946 pregnant women who attended antenatal clinic and 742 were tested as a couples while 4,204 were tested alone (Government of Kenya, 2017). Therefore, there is great need to assess the acceptance of couple's HIV counseling and testing and find out what hinders male partners from accessing this important service that can reduce HIV transmission and an excellent component of elimination of mother to child transmission (EMTCT).

Materials and Methods

The Study Area

The study was conducted in Likoni sub-County, one of the four sub-counties of Mombasa County, Kenya. Mombasa County covers an area of approximately 229.7 km^2 excluding 65 km^2 of water mass with a population of 1.3 million people, 60% living in informal settlement (Akunga, 2015). HIV prevalence is 7.4% with a HIV burden of 54,600 persons annually and HIV incidence of 1,606 persons (Kenya National Bureau of Statistics, 2019). Likoni sub-County is densely populated with a population of 200,000 people (Kenya National Bureau of Statistics, 2019). The socio-economic status of people living in Likoni sub-County is low, hence poverty and drug abuse has increased HIV and AIDS prevalence rate to 4% (Kenya National Bureau of Statistics, 2019). The study was conducted in six government health facilities in Likoni sub-County that offer ANC services: Likoni sub-County Hospital, Mrima Health Centre, Mbuta Health Centre, NYS Dispensary, Shika -Adabu Dispensary, and Mtongwe Health Centre.

Research Design

A cross-sectional descriptive study design was adopted which involved collection of quantitative information that was tabulated along a continuum in numerical form and categories of information described such as gender or patterns of interaction in a group situation.

Study Population

The study targeted only pregnant women and their partners visiting antenatal clinic at Likoni sub-County hospitals. The inclusion criteria were; only expectant women visiting antenatal clinic and their partners who consented, all pregnant women who had stayed in Likoni for the last six months, and all pregnant women who were 14-45 years old. Nurses in-charge of antenatal clinics in the six facilities were also included.

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The study excluded women who had come for VCT service and were not expectant, pregnant women who had not stayed in Likoni for the last six months, and expectant women who declined to participate in the study. In-charges of antenatal clinic who declined to participate in the study were also excluded.

Sample Size Determination

The sample size was determined using the formula adopted by Fisher et al., (1998):

$$n = \frac{z^2 pq}{d^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(i)}$$

Where;
n = the desired sample size (when target population > 10,000);
z = the standard deviation value at 95% confidence interval (1.96);
p = the proportion of the study population estimated to have attended CHTC (0.5);
q = the proportion of the study population estimated not to have attended CHTC (1-p), and
d = degree of precision chosen for the study (0.05).

Therefore;

$$n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384$$

…….. (ii)

From the health records of all the sub-county hospitals a total of 5,000 pregnant women and their partners were visiting the antenatal clinic, and this made the target population for this study. Since the target population is <10,000, the Cochran (1977) formula for calculating a finite population was adopted. Hence, the final sample size was given by the formula:

$$n = \frac{n_0}{1+\frac{(n_0-1)}{N}}$$

…… (iii)

Where;
n_0 = the sample size derived from the calculation Fisher *et al.,* (1998), and
N = the population size (5,000)

Therefore,

$$n = \frac{384}{1+\frac{(384-1)}{5000}} = 356.68 \approx 357$$

……. (iv)

Proportionate to size sampling was then used to determine the sample to be picked from each health facility as a proportion of pregnant women in each health facility (Table 1).

Table 1. Number of participants sampled from each health facility based on proportion to size sampling in Likoni sub-County hospitals

No.	Health Facility	Total target population	Sample size	% Sample size
1	Mbuta Health Centre	830	59	16.5
2	Shika-Adabu Health Centre	480	34	9.5
3	Mtongwe Health Centre	338	24	6.7
4	NYS Dispensary	42	3	0.8
5	Likoni Sub County Hospital	1370	98	27.5
6	Mrima Health Centre	1940	139	38.9
	Total	**5000**	**357**	**100**

Sampling Technique

Likoni sub-County was purposively selected because of its reported high cases of discordant couples. The sampling frame consisted of six health facilities within the study area. Cluster sampling technique was employed to draw respondents from the six health facilities. Based on average monthly attendance of the couples in each facility, each study site was allocated a proportionate number of study subjects. Random sampling technique was then used to get the respondents to be interviewed in each health facility during each visit.

Data Collection Process

A total of six HTS nurses and community health volunteers based in the six health facilities assisted in the data collection process. Prior to their involvement, they were briefed on the aim and objectives of the study. Data collection was carried out during the day at the time convenient for the clients, and as they visited the health facility.

The clients (couples) were approached and informed about the nature of the study and

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taken through a Participant Information Sheet detailing the aim of the study, and issues of Consent and Confidentiality discussed. The couples who agreed to participate were then taken through a structured pretested questionnaire, and their responses recorded accordingly. The questionnaire comprised of questions on socio-demographic characteristics, operation factors, and knowledge, attitude and practices of couples on HIV risk behaviors.

The staff working in antenatal clinic in the six public facilities were interviewed using Interview Schedule. The questions were geared towards supplementing and complementing the information obtained from the couples. An Observation Schedule was used to record the flow of the clients (pregnant women and their spouses), how they were relating with health care workers, duration they took in the facility, and any other information from the facility that supported the study objectives. The reliability of the study tools was enhanced through repeated field tests during pre-testing.

Data Analysis

The completed questionnaires were checked for missing data, cleaned for inconsistencies and missing values, and then coded and entered into the EpiData (Version 3.1). The data was then exported to R (Version 3.6.1) for further cleaning, coding and analysis. Univariate descriptive statistics was used to analyze each single variable and the findings reported as frequencies. The Chi-square statistical test was used to determine significant associations at 95% confidence intervals. The bivariate analysis was used to compare the relationship between CHCT. Multivariate logistic regression analysis was performed to determine the odds ratio of the individual predictor factors to CHCT. P value < 0.05 was regarded as statistically significant.

Results

Socio-demographic Factors

A total of 321 from the expected 357 respondents were interviewed. The largest proportion (60 %) of the respondents were aged between 36 and 45 years and only 4.3 % of the respondents were above 45 years old. Majority (55.8 %) of the respondents had acquired school education, with slightly more than half of them (55.8 %) having completed primary school while 32.1 % and 4.9 % having completed secondary school and college/tertiary education, respectively. Only 7.2 % of the respondents had not acquired school education.

Most of the participants who accepted CHCT attended Mbuta Health Centre (83.9 %) with majority of those who rejected it having attended Likoni sub-County Hospital (47.5 %). The majority (84.7 %) of the respondents were married followed by those who were divorced (11.6%), single (2.6%) and widowed (1.2 %). Most respondents belonged to the Islamic religion (64.4 %) and the rest were Christians (35.6 %). In terms of occupation, slightly more than a quarter were self-employed (47.3 %) followed by those unemployed (33 %), employed (18%) and students who made up 1.7%. It was also observed that the majority (63.3 %) of the respondents were low-income earners, earning a monthly income of between $ 9.12 - $ 45.58 (63.3 %).

Chi-square analysis at 5% significance level ($p < 0.05$) revealed statistically significant associations between CHCT and the following socio-economic factors: education level ($\chi^2 = 29.540$; $p = 0.005$), marital status ($\chi^2 = 12.410$; $p = 0.010$), occupation ($\chi^2 = 18.180$; $p = 0.000$) and income level ($\chi^2 = 23.020$, $p < 0.001$) (Table 2).

Table 2. Results of Chi-square test on association between socio-demographic factors and acceptance of CHCT among pregnant women attending antenatal clinic at Likoni sub-County, June 2019. ***S**tatistically significant at 5% confidence level

Characteristic	**CHCT Acceptance Status**		
	Acceptors (%)	Non-acceptors (%)	*Chi*-square, p-value
Age in years (n=346)			χ^2= 8.00, p = 0.770
15-24	43.9 (n = 29)	56.1 (n = 37)	
26-35	38.6 (n = 22)	61.4 (n = 35)	
36-45	29.9 (n = 58)	72.1 (n = 150)	
Above 45	46.7 (n = 7)	53.3 (n = 8)	
Education level (n=346)			χ^2= 29.54, p = 0.005*
No education	48.0 (n = 12)	52.0 (n = 13)	
Primary	43.5 (n = 84)	66.5 (n = 109)	
Secondary	16.2 (n = 18)	83.8 (n = 93)	
College/University	11.8 (n = 2)	88.2 (n = 15)	
Marital status (n=346)			χ^2= 12.41, p =0.010*
Single	33.3 (n = 3)	66.7 (n = 6)	
Married	30.0 (n = 88)	70.0 (n = 205)	
Divorced	57.5 (n = 23)	42.5 (n = 17)	
Widowed	50.0 (n = 2)	50.0 (n = 2)	
Religion (n=346)			χ^2= 0.43, p = 0.510
Christian	35.8 (n = 44)	64.2 (n = 79)	
Muslim	32.3 (n = 72)	67.7 (n = 151)	
Occupation (n=346)			χ^2= 18.18, p = 0.000*
Unemployed	47.4 (n = 54)	52.6 (n = 60)	
Self-employed	30.5 (n = 50)	69.5 (n = 114)	
Employee	17.7 (n = 11)	82.3 (n = 51)	
Students	16.7 (n = 1)	83.3 (n = 5)	
Income (US$/month) (n=226)			χ^2= 23.02, p < 0.001
$9.12-$45.58	46.0 (n = 23)	54.0 (n = 27)	
$54.69-$91.16	21.0 (n = 30)	79.0 (n = 113)	
➢ $91.16	24.2 (n = 8)	75.8 (n = 25)	

Operational Factors

Various operational factors influenced the uptake of CHCT among pregnant women attending ANC at Likoni sub-County (Table 3). Majority of the respondents (49.9 %) reported to reside less than 5 km from their closest health facility, slightly more than a quarter (29.2 %) resides 5-10 km from their closest health facility and 19.4 % resided between 11-15 km; about 2.3% reported to reside more than 15 km from their closest health facility.

The main means of transport to the health facility was public transport reported by the majority (54.9 %) with only 0.6 % using private transport. Majority (49.8 %) reported spending between ($0.46 - $0.91) as cost of transport to the health facility. Slightly more than half (57.8 %) of the participants reported that the hours set by the health facilities were not appropriate and convenient to them. Additionally, most of those who were employed (58.1 %) reported that their employers did not allow them to seek medical attention. Similarly, more than half the respondents (57.2 %) reported to have received enough information from the health care providers on the importance of couples' HIV counselling and testing. Participants who resided more than 15 km (62.5 %) from a particular health facility constituted majority of those who accepted CHCT while those who resided 11-15 km (76.1 %) constituted a large proportion of participants who did not accept CHCT.

Results of Chi-square test revealed statistically significant association between CHCT and distance to the health facility (χ^2 = 8.310; p = 0.040), means of transport to the health facility (χ^2 = 10.280; p = 0.040), cost of

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transport to the health facility (χ^2 = 10.920, p = 0.010), appropriateness and convenience of time allocated at the health facility (χ^2 = 11.880; p = 0.000), receiving enough education /information on CHCT (χ^2 = 5.970; p = 0.020), and duration of work per day (χ^2 = 14.460; p = 0.000) (Table 3).

Table 3. Results of Chi-square test on operational factors associated with acceptance of couples to HIV counseling and testing among pregnant women attending antenatal clinic in Likoni sub-County, June 2019. *Statistically significant at 5% confidence level

Characteristic	CHCT Acceptance Status		Chi-square, p-value
	Acceptors (%)	Non-acceptors (%)	
Distance to the health facility (n=346)			χ^2 = 8.31, p = 0.040*
Less than 5km	40.6 (n = 41)	59.4 (n = 60)	
5-10km	31.8 (n = 54)	68.2 (n = 116)	
11-15km	23.9 (n = 16)	76.1 (n = 51)	
More than 15km	62.5 (n = 5)	37.5 (n = 3)	
Means of transport to the health facility (n=346)			χ^2 = 10.28, p = 0.040*
Personal vehicle	0.000	100.0 (n = 2)	
Public transport	33.2 (n = 63)	66.8 (n = 127)	
Motorbike	23.1(n = 18)	76.9 (n = 60)	
Bicycle	40.0 (n = 2)	60.0 (n = 3)	
Walking	46.5(n = 33)	53.5 (n = 38)	
Cost of transport to the health facility inUS $. (n=273)			χ^2= 10.92, p = 0.010*
Below 0.46	35.2 (n = 43)	64.8 (n = 79)	
0.46-100	28.7 (n = 39)	71.3 (n = 97)	
Above 0.91)	6.7 (n = 1)	93.3 (n = 14)	
Is the time allocated by the health facility was appropriate and convenient (n=346)			χ^2 = 11.88, p = 0.000*
Yes	41.0 (n = 82)	59.0 (n = 118)	
No	23.3 (n = 34)	76.7 (n = 112)	
If working (in employment) how long per day (n = 231)			χ^2= 14.46, p = 0.000*
Less than 5 hours	98.0 (n = 50)	2.0 (n = 1)	
6-10 hours	27.3 (n = 27)	72.7 (n = 72)	
More than 10 hours	26.2 (n = 34)	73.8 (n = 96)	
Employer allows for seeking of medical attention (n = 65)			χ^2= 9.22, p = 0.450
Yes	11.5 (n = 3)	88.5 (n = 23)	
No	22.2 (n = 8)	77.8 (n = 28)	
Get enough education /information on CHCT(n = 346)			χ^2= 5.97, p = 0.020*
Yes	38.9 (n = 77)	61.1 (n = 121)	
No	26.4 (n = 39)	73.6 (n = 109)	

Knowledge, Attitude and Practice of Couples on HIV Risk Behaviours

The associations between CHCT and knowledge, attitude and practice of couples on HIV risk behaviours among pregnant women attending varied (Table 4). Majority (70.5 %) of the respondents affirmed that CHCT reduces stigma for the couples and also among family members. A larger proportion (66.2 %) reported that people living with HIV/AIDS were not being discriminated. Almost three quarters of the participants (71.4 %) acknowledged that CHCT helps in disclosure among partners and also helps the discordant partner from contracting HIV (58.4 %). It was also reported that CHCT could help the couples adhere to ART (57.8%) and also help in reducing morbidity and mortality due to HIV and other opportunistic infections (59.5%). It was further observed that the uptake of CHCT could increase trust (58.7%) and cohesion (61%) among couples.

Results of Chi-square test showed that a number of variables were statistically significant in the association between the acceptance of CHCT, including; helping to prevent discordant partner from contracting HIV (χ^2 = 53.710; p < 0.001), helping couples adhere to ART (χ^2 = 43.340; p < 0.001), helping in reducing morbidity and mortality due to HIV and other opportunistic infections (χ^2 = 48.660; p < 0.001), help increasing trust among partners (χ^2 = 41.160; p < 0.001), and help increasing marital cohesion among partners

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(χ^2 = 65.780; p < 0.001).

Determinants of Couples HIV Counselling Testing

Results of multiple logistic regression analysis on independent predictors against couples' acceptance to HIV counseling and testing varied (Table 5). It was observed that couples who were married were 3.6 more likely to accept CHCT (AOR = 3.590; 95% CI: 1.71-7.72; p = 0.000) than those who were divorced; the unemployed couples had a reduced odd of 64% (AOR = 0.360; 95% CI: 0.15-0.81; p = 0.020) of accepting CHCT as compared to their counterparts who were employed.

Individual operational factors did not significant determine CHCT. However, for HIV related knowledge, attitude and practice, those who believed that CHCT can help improve trust among partner were 22.82 times more likely to accept CHCT (AOR = 22.820; 95% CI: 1.76-709.86; p = 0.020) than their counterparts, and those who believed that CHCT increases marital cohesion had reduced odds of 99.6% (AOR = 0.040; 95% CI: 0.00-0.19; p = <0.001) of accepting CHCT as compared to their counterparts who did not believe that CHCT increases marital cohesion.

Table 4. Results of Chi-square test on HIV related knowledge, attitude and practice associated with acceptance of couples to HIV counseling and testing among pregnant women attending antenatal clinic in Likoni sub-County, June 2019. *Statistically significant at 5% confidence level

Characteristic	CHCT Acceptance Status		Chi-square, p-value
	Acceptors (%)	Non-acceptors (%)	
CHCT reduces stigma within the couples(n=346)			χ^2= 0.110; p = 0.740
Yes	32.8 (n = 80)	67.2 (n = 164)	
No	35.3 (n = 36)	64.7 (n = 66)	
CHCT reduces stigma among family members(n=346)			χ^2= 0.350; p = 0.560
Yes	32.4 (n = 81)	67.6 (n = 169)	
No	36.5 (n = 35)	63.5 (n = 61)	
PLHIV/AIDS are discriminated(n=346)			χ^2 = 1.580; p = 0.210
Yes	29.1 (n = 34)	70.9 (n = 83)	
No	35.8 (n = 82)	64.2 (n = 147)	
CHCT helps in disclosure among partners(n=346)			χ^2 = 0.700; p = 0.400
Yes	32.0 (n = 79)	68.0 (n = 168)	
No	37.4 (n = 37)	62.6 (n = 62)	
CHCT can help prevent discordant partner from contracting HIV(n=346)			χ^2= 53.710; p < 0.001
Yes	17.8 (n=36)	82.2 (n=166)	
No	55.6 (n=80)	44.4 (n=64)	
CHCT can help couples adhere to ART(n=346)			χ^2 = 43.340; p < 0.001
Yes	19.0 (n = 38)	81.0 (n = 162)	
No	53.4 (n = 78)	46.6 (n = 68)	
CHCT can help reduce morbidity and mortality due to HIV and other opportunistic infections (n=346)			χ^2= 48.660; p < 0.001
Yes	18.9 (n = 39)	81.1 (n = 167)	
No	55.0 (n = 77)	45.0 (n = 63)	
CHCT can help increase trust among partners(n=346)			χ^2= 45.160; p < 0.001
Yes	19.2 (n = 39)	80.2 (n = 164)	
No	53.8 (n = 77)	46.2 (n = 63)	
CHCT can help increase marital cohesion among partners(n=346)			χ^2= 65.780; p < 0.001
Yes	17.1 (n = 36)	82.9 (n = 175)	
No	40.7 (n = 55)	59.3 (n = 80)	

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Table 5. Results of regression analysis for independent predictors of couples' acceptance to HIV counseling and testing in Likoni sub-County, June 2019. *Statistically significant at 5% confidence level

Characteristic	Adjusted Odds Ratio (95 % CI)	*P-value*
Socio-demographic characteristics		
Education level		
No education	Ref	-
Primary	0.22(0.01-1.86)	0.220
Secondary	0.17(0.01-1.17)	0.130
Tertiary/college	0.52(0.03-3.57)	0.570
Marital status		
Married	3.59(1.71-7.72)	0.000*
Single	3.64(0.72-21.57)	0.130
Widowed	1.55(0.17-14.12)	0.680
Divorced	Ref	-
Occupation		
Self-employed	0.94(0.4-2.1)	0.880
Student	Ref	-
Unemployed	0.47(0.02-14.33)	0.630
Employed	0.36(0.15-0.81	0.020*
Operational factors		
Distance to the health facility		
Less than 5km	1.75(0.5-6.66)	0.390
5-10km	0.93(0.32-2.52)	0.880
11-15km	0.31(0.05-1.75)	0.190
More than 15km	Ref	-
Means of transport to the health facility		
Personal vehicle	-	-
Public transport	3.12(0.27-34.59)	0.340
Motorbike	3.08(0.31-27.85)	0.310
Bicycle	Ref	-
Walking	1.64(0.18-13.4)	0.640
Cost of transport to the health facility in Ksh.		
Below 50	0.98(0.5-1.93)	0.960
50-100	4.9(0.87-92.68)	0.140
Above 100	Ref	-
Time allocated by the health facility was appropriate and convenient		
Yes	0.57(0.67-1.2)	0.140
No	Ref	-
If working (in employment, working hrs day		
Less than 5 hours	0.57(0.02-15.52)	0.710
6-10 hours	1.47(0.71-3.06)	0.300
More than 10 hours	Ref	-
Get enough education/information on CHCT		
Yes	0.85(0.43-1.68)	0.630
No	Ref	-
HIV related knowledge, attitude and practice		
CHCT can help prevent discordant partner from contracting HIV		
Yes	028(0.07-1.04)	0.060
No	Ref	-
CHCT can help couples adhere to ART		
Yes	1.29(0.25-10.52)	0.780
No	Ref	-
CHCT can help reduce morbidity and mortality due to HIV and other opportunistic infection		
Yes	0.45(0.03-4.72)	0.510
No	Ref	-
CHCT can help increase trust among partners		
Yes	22.82(1.76-709.86)	0.020*
No	Ref	-

CHCT can help increase marital cohesion among partners		
Yes		
No	0.04(0.00-0.19)	<0.001*
	Ref	-

Discussion

The World Health Organization (WHO) guidelines recommend offering of HIV testing and counseling to couples wherever HIV testing and counseling is available (World Health Organization, 2012). In regards to couples where only one partner is HIV positive, the guidelines recommend offering of antiretroviral therapy to the HIV positive partner, regardless of his/her own immune status, so as to reduce the likelihood of HIV transmission to the HIV negative partner (Donnell et al., 2010). This study observed that in Likoni sub-County, 33.5% of the respondents had accepted CHCT, a proportion that is slightly higher than that recorded in the 2012 Kenya AIDS Indicator Survey (NASCOP, 2014) which observed a national CHCT rate of 31.5%. However, found the CHCT in Kenya to be 37.2%. Nannozi et al., (2017), in their study which determined motivators of CHCT uptake in a rural setting in Uganda, observed an uptake of 34.0%.

Couples HIV testing and counseling is a well-tested, feasible, and acceptable intervention that reduces HIV transmission through sero-status based counseling (Banje et al., 2016). The present study has shown that several socio-demographic factors were significantly and independently associated with acceptance of CHCT. Socio-demographic factors such as location of the health facility, education status, marital status, occupation and income were significantly associated with CHCT acceptance among the respondents. However, results of multivariate logistic regression analysis showed that only couples who were married and those who were unemployed were significant determinants of CHCT. Kababu et al., (2018) reported that, married couples and those in stable sexual relationships account for the highest percentage (44%) of new HIV infections. Nannozi et al., (2017) in their study pointed out that HIV testing was a prerequisite in many churches in Uganda before wedding. Thus, this idea of HIV testing was also extended among the individuals who intended to commit to a serious relationship. Hlongwa et al., (2020) reported that married men are more likely to go for CHCT compared to those who are cohabiting or are in a stable heterosexual relationship, who may not think that CHCT was important or may be afraid of the outcome of the HIV test results. Also, it could be that these men are not as committed to the relationship as married men for them to ask the partner to go for CHCT, or it could be that they may have had individual HIV counseling and testing so they already know their status. On the other hand, in this present study, an individual's occupation and amount of income earned were also observed to be a significant determinant to accepting CHCT.

The unemployed respondents formed a larger proportion of those who accepted CHCT in the present study. Our verification with all the sampled health facilities in this study showed that, the unemployed group formed the vast majority of those who seek health care from these facilities. The only reasonable explanation we could give for this trend is that, all of these health facilities sampled were public health facilities; thus, this group could easily afford most of the services offered.

The acceptance of CHCT in this study was also associated with variety of operational factors such as distance to the health facility, mode and cost of transport to the health facility. It was noted that when distance to the health facility was more than 15 km, mode of transport became difficult and fares increase and the proportion of CHCT acceptors tended to decline tremendously. When the health facility is near, one is able to seek medical services from the facility but when it is located far an individual may opt for other alternatives such as traditional herbalist. that the observed highest response rate of 38.2 % of CHCT at Mrima Health Centre was due to the fact that the health facility was new and under support of other stakeholders (Médecins Sans Frontiéres) that was giving a token to the clients who visited the facility. The facility also doubled up to be the maternity hospital offering reproductive health services only for free. Additionally, being a new facility, many would wish see the services offered by the donors (the French). NYS dispensary, has restrictions and controls for external clients

since it was built specifically for National Youth Service staff. It also has accessibility issues since it is not near to the public, one has to walk a long distance. Multivariate analysis did not reveal any operational factor as a statistically significant determinant to CHCT.

Adversary to the difficulty on the mode of transport and fare paid by pregnant women so as to attend a particular health facility has been highlighted in other studies. Konje et al., 2018) highlighted on the factors associated with HIV testing and counselling among couples in Bulawayo City and noted that short distances were associated with a high CHCT uptake. Additionally, Shifraw et al., (2016) in their study why women preferred home births in Ethiopia reported found out that most pregnant women tend not to utilize the services of health facility when they are located far away. Laurenzi et al., (2020) stated that most pregnant women are not able to access transport services due to the poor road network and infrastructure especially in rural and poor urban regions in Africa. Similarly, Chandia et al., 2017) reported that availability of affordable transport and the condition of the roads influences the decision to attend a service at a health facility. Availability of time for couples to attend HIV testing and counseling has also been linked to a high CHCT uptake (Muhindo et al., 2015). In the present study the findings showed that, time allocated for patients by a particular health facility also tends to encourage more couple to attend HIV counseling and testing together. Where the time allocation is convenient and appropriate, more couples seem to attend the process together. Similarly, in instances where the working duration increases for the employed individuals, the proportion of those accepting CHCT tend to be low.

CHCT helped in creating trust among couples, knowing the HIV status one's partner and fosters cohesion/unity among the couples. These benefits are relevant for all couples, whether they have the same HIV test results (HIV sero-concordant) or have different results (HIV sero-discordant). Several studies suggest that people who learn their HIV status are more likely to adopt preventive behaviours than people who are unaware of their HIV status. Furthermore, couples who test together and mutually disclose their HIV status are more likely than those testing alone to adopt behaviour to protect their partner (Masters et al., 2016).

Education level has been reported in several settings as a main factor for creating a first-hand knowledge and awareness. A good proportion of the study participants in the present study affirmed that they are well versed with CHCT knowledge. Chamie et al., (2014) reported that peer education is an eminent intervention that can increase knowledge and positive attitudes towards HIV/AIDS among adolescents. Additionally, among people living with HIV, knowledge of HIV status has been associated with more than 60% reduction in HIV transmission through improved risk-reduction behavior (O'Connell et al., 2015). There are many potential benefits for supporting couples to test together for HIV infection, and to mutually disclose their HIV status. Through testing together, they can then make informed decisions about HIV prevention and reproductive health (Tabana et al., 2013).

The benefits of CHCT have been pointed out in other studies such as safer sexual behaviour in couples who use condoms (Muhindo *et al*., 2015), higher uptake of interventions such as antiretroviral therapy (ART) for HIV-positive partners (McNairy et al., 2013), reduction in HIV incidence among HIV-negative sex partners and viral load among HIV-positive partners increased knowledge of CHCT (Nannozi et al., 2017). The present study observed that, couples who failed to disclose their status to their partners may experience poor adherence to appointments dates/drugs due to fear of the other partner (mostly fear from their male partners), poor clinical follow-up and difficulty in treatment. Thus, it is essential that the providers of CHTC should adhere to basic tenets of self-determination, privacy, informed decision-making and protection.

Despite the aforementioned benefits, participants also highlighted certain barriers that influenced couples not to attend HIV counseling and testing together. Stigma, fear, feeling that it is not necessary, and couples not yet decided to do so, were some of the barriers which made the respondents in the present study opt not to attend CHCT. This finding concurs with the WHO (2012) findings that, stigma and discrimination were significant problems for people with HIV. Moreover,

findings of this study concur with studies such as (O'Connell et al., 2015) who observed that, the barriers to low uptake of CHTC include fear of negative outcomes of disclosure, conflicting work schedules, unwillingness of partner to test, low risk perception of HIV infection, prior testing of HIV, marital status and lack of CHTC awareness. Nannozi et al., (2017) reported mistrust among couples and limited men involvements are also some of the barriers to CHCT uptake. Ammon et al., (2018) pointed out that, the main barriers to HIV counseling and testing among male partners include stigma, fear of prognosis, lack of awareness of HIV risk, inconvenience, fear of disclosure, transportation costs, opportunity costs such as time away from work, and behavioral factors such as a tendency to delay behaviors with immediate costs and delayed benefits.

Conclusion and Recommendation

The uptake of CHCT in the study area is still low. The location of the health facility, mode of transport and cost of transport to health facility; educational status; marital status; occupation and amount of income earned; availability of time to attend health facility; awareness of CHCT were some of the factors that could positively affect uptake. Further work is needed to determine the quality of a particular health facility and services offered by these facilities to promote CHCT uptake.

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