

Dual Contraception Prevalence among Seropositive Women in Discordant Marital Relationships in Nyatike Sub-County, Kenya

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Abstract: - HIV-discordant couples are faced with dual problem of preventing unwanted pregnancy and HIV transmission to uninfected partner. Dual contraception involving consistent use of condoms to prevent STIs/HIV infection and another more effective modern contraceptive for pregnancy prevention has been recommended to offer dual protection for discordant couples. However a large proportion of new HIV infections and unwanted pregnancies in Sub-saharan Africa still occur in stable HIV-discordant partnerships and Nyatike Sub-county in Migori County, Kenya is no exception. The objectives of this study were to find out the prevalence of dual contraception, and to find out the most common form of dual contraception among seropositive women in discordant marital relationships in Nyatike Sub-county in Migori County, Kenya. A cross-sectional survey design was employed. Fourteen health facilities were purposively sampled within Nyatike Sub-county. A total of 174 randomly sampled seropositive women in discordant marital relationships were subjected to interviewer administered semi-structured questionnaire. Two focused group discussions (FGDs) involving fourteen seropositive women randomly sampled were conducted. Additionally, the study involved 28 in-depth interviews with fourteen randomly sampled seronegative men in discordant relationships and fourteen purposively sampled healthcare providers (key informants). Quantitative data was analyzed using frequencies and percentages while Content analysis was used to analyze qualitative data. Tables were used to present research results. The study revealed low dual contraception prevalence 29.3%. Condom plus injections was the most used form of dual contraception to offer dual protection at 24.1%. Partner refusal, perceived and real side effects, religious beliefs and desire for biological child were the main barriers to dual contraception use. The study recommends formulation of HIV integrated FP programs that intensify efforts in improving knowledge of dual contraception use among seropositive women and its critical health benefits, coupled with encouraging constructive male partner communication and engagement in order to increase dual contraception uptake.

Key words: Seropositive women, dual contraception, dual contraception prevalence, form of dual contraception

I. INTRODUCTION

Globally, an estimated 36.7 million people were living with HIV at the end of 2015, with nearly 70% of them

residing in Sub-saharan Africa (SSA) (WHO, 2016). Further, 50% of PLHIV globally are women (Bongomin *et al.*, 2018), an indication that women are more vulnerable to HIV infection. Hit hard with High HIV prevalence, SSA also experiences low modern CPR (23.9%), which has caused the region to have the highest population growth rate globally (Izugbara, 2018). These countries have therefore embarked on the provision of modern contraceptives and sensitization on family planning (Mulongo *et al.*, 2017) to reduce new HIV infections (Paul *et al.*, 2014; Okigbo *et al.*, 2015) and unintended pregnancies (Haddock *et al.*, 2008; Haddad *et al.*, 2015).

However, despite increased contraceptive awareness in SSA, (Grabbe *et al.*, 2008; Okigbo *et al.*, 2015), unmet need for modern contraception is still high (23.6%) among women of reproductive age (Izugbara *et al.*, 2018). In Kenya, the government initiated FP programs in 1957 with the Family Planning Association of Kenya (FPAK now Family Health Options Kenya (FHOK)) mandated to operate FP clinics within Ministry of Health facilities (Okech *et al.*, 2011). However, more than six decades later, only 53.2% of women in union (married or cohabiting with a male partner) use modern contraceptives (KNBS and ICF macro, 2015), with Migori County modern CPR being only 44%. This is despite being the fourth ranked county with the highest HIV prevalence (14.3%) which is more than double 5.9% national prevalence (KNBS and ICF macro, 2015).

The contraceptive use is however complex among discordant couples who are concerned with prevention of unintended pregnancy and HIV transmission to uninfected partner. Initially, discordant couples were in the past advised not to have children (Mathews, *et al.*, 2011). However, with international reproductive guidelines shifting from avoidance of pregnancy to recommending conception and parenting among discordant couples (Izugbara *et al.*, 2018) coupled with both socio-cultural pressure and the use of ART (Chakrapani *et al.*, 2011), discordant couples are motivated to have children in an environment with limited integration of FP and

HIV services which results in new HIV infections (Gebrehiwot *et al.*, 2017).

Studies have therefore recommended dual contraception use for dual protection among discordant couples (Haddock *et al.*, 2008; Chakrapani *et al.*, 2011). However, its use is relatively low globally with a rate ranging from 7% to 23% among women of reproductive age (19% for married women) in USA (Brown, *et al.*, 2011 and Eisenberg, *et al.*, 2012), 15% to 30% in Europe (Higgins and Cooper, 2012), 27% in Canada (Patterson *et al.*, 2014) and 29.6% in Thailand (Munsakul *et al.*, 2016). In sub-Saharan Africa, low dual contraception prevalence of 27.2% in Nigeria (Lewani *et al.*, 2014), 34% in Namibia (Antelman *et al.*, 2015) and 15.7% in Ethiopia (Gebrehiwot *et al.*, 2017) has also been noted among seropositive women. Researchers have similarly shown low dual contraception prevalence of 28% (Antelman *et al.*, 2015) and 38.5% (Mulongo *et al.*, 2017) among seropositive women in Kenya. Surprisingly, no research on dual contraception prevalence exists in Nyatike Sub-county of Migori County, particularly among seropositive women in discordant relationships.

II. LITERATURE REVIEW

2.1 Dual Contraception Prevalence among Seropositive Women

The prevalence of HIV discordance is high among heterosexual couples in Africa (Lurie *et al.*, 2003; Sagay *et al.*, 2006), particularly in sub-Saharan Africa where half of PLHIV in stable relationships are discordant (Makwe and Giwa-Osagie, 2013). Further, SSA also witnesses a large proportion of new HIV infections among these discordant couples (Brubaker *et al.*, 2010), which is an indication that they engage in unprotected sexual intercourse.

Medical strategies available for reducing the high rate of HIV transmission among discordant couples include couple based HIV testing and counseling to disclose partner HIV status, administering ART to infected partner to suppress viral load (Chadwick *et al.*, 2011; Tsuyuki *et al.*, 2013), administering PrEP to uninfected partner before sexual intercourse or post exposure prophylaxis after unprotected sex (Mathews *et al.*, 2011; Mmeje *et al.*, 2012), treatment of STIs and circumcision of uninfected male partner (Curran *et al.*, 2012). In addition, discordant couples who desire to have children should carry out home manual insemination or timed unprotected sex during woman's peak fertility period (Mathews *et al.*, 2011) to limit chances of HIV infection. Despite these strategies, discordant couples still engage in unprotected sexual intercourse (Chadwick *et al.*, 2011), a cause for high pregnancy and HIV transmission rates witnessed among them.

Faced with dual problem of preventing unintended pregnancy and HIV transmission to uninfected partner, contraceptive method providing dual protection is the best option for discordant couples. This can be achieved by correctly and consistently using either male or female condoms singly.

However, women being unable to discuss safe sex because they are culturally weak (Haddock *et al.*, 2008), partner desire for sensation (Imbuki *et al.*, 2010; Tsuyuki *et al.*, 2013) and linking condom use with infidelity (Teklu and Davey, 2008) interferes with long-term use of condoms in stable relationships. Further, contraceptive methods such as vasectomy, female sterilization, intrauterine devices (IUDs) and hormonal contraceptives effectively prevent pregnancy but do not protect against HIV/STIs.

Thus, the most prudent approach to dual protection is dual contraception which involves consistent condom use to prevent HIV/STIs infection together with effective modern contraceptive for pregnancy prevention (Oni *et al.*, 2003; Haddock *et al.*, 2008; Haddad *et al.*, 2015). However, this being a complex strategy to dual protection, its use has been relatively low with a rate ranging from 7% to 23% among women of reproductive age in USA (Brown, *et al.*, 2011 and Eisenberg, *et al.*, 2012), 15% to 30% in Europe (Higgins and Cooper, 2012), 25% among married women living with HIV in India (Chakrapani *et al.*, 2011) and 34.2% among HIV positive women in Thailand (Munsakul *et al.*, 2016). African studies have similarly shown low dual contraception prevalence of 38% in Zimbabwe (Magwali *et al.*, 2005), 27.2% in Nigeria (Lewani *et al.*, 2014), 34% in Namibia (Antelman *et al.*, 2015), 19.7% in Ethiopia (Teklu and Davey, 2008) and 15.7% again in Ethiopia (Gebrehiwot *et al.*, 2017). In Kenya, a low dual contraception prevalence of 28% (Antelman *et al.*, 2015) and 38.5% in Bungoma County (Mulongo *et al.*, 2017) has also been reported.

These previous studies focused on entire seropositive women but failed to establish specific dual contraception prevalence among seropositive women in discordant relationships. This is the knowledge gap which this study intended to fill, particularly in Nyatike Sub-county where such information was non-existent.

2.2 Most Common Form of Dual Contraception among Seropositive Women

The reproduction technologies that have been developed to prevent HIV transmission while allowing for safe conception among discordant couples such as Insemination with partner's semen and sperm washing of seropositive male partner coupled with intrauterine insemination (Delvaux and Nostlinger, 2007; Brubaker *et al.*, 2010) are beyond the reach of the poor population because of their high cost.

The low cost modern contraceptives available for use by discordant couples to avoid unintended pregnancy includes hormonal contraceptives (pills, injections, implants and vaginal rings); permanent contraceptive methods (female sterilization/tubal ligation and vasectomy); intrauterine devices (IUDs) and barrier contraceptives (male and female condoms). Traditionally, discordant couples should embrace withdrawal, abstinence and rhythm method as a safe measure for birth control (Haddad *et al.*, 2015). These contraceptives except condoms (modern) and abstinence (traditional) only

prevent pregnancy but do not prevent HIV transmission. Based on this, discordant couples are supposed to use dual contraception involving consistent condom use for preventing HIV transmission in conjunction with non-barrier contraceptive for pregnancy prevention. The type of non-barrier contraceptive used in combination with condoms however varies across this population.

Whereas a study in Thailand has shown condom plus sterilization as the most common form of dual contraception used among PLHIV at 69.8% (Munsakul *et al.*, 2016), African studies have shown condom plus injectables as the most common form of dual contraception used among women living with HIV at 78.9%, in Nigeria (Lewani *et al.*, 2014), 68.6% in Ethiopia (Gebrehiwot *et al.*, 2017) and 51.4% in Kenya (Mulongo *et al.*, 2017). Similarly, 56% of study participants in Namibia, Kenya and Tanzania reported using condom plus injectables whereas only 20% and 17% used female sterilization and oral pills with condoms respectively (Antelman *et al.*, 2015). Even though injection is highly used among participants reporting dual contraception use, its proportion of use varies regionally. This is evident in the findings of Okigbo *et al.* (2015) where the proportion of women reporting use of injectables plus condoms in Kenya, Nigeria and Senegal were 24%, 25% and 13% respectively.

3.3.2

Based on these observed regional variation among study participants in different study settings coupled with previous studies focusing their investigation on entire population of women living with HIV with no distinction of those in discordant relationships, there is need to investigate the most common form of dual contraception for dual protection among seropositive women in discordant relationships in Nyatike Sub-county because it is non-existent.

III. METHODOLOGY

3.1 Study Design

The study was descriptive cross-sectional survey. Descriptive design involves interviewing or administering a questionnaire to sampled respondents in order to collect information about their attitudes, opinions or habits (Orodho and Kombo, 2002)

3.2 Study Population

The study population was 344 seropositive women in HIV discordant marital relationships in Nyatike Sub-county. The target population was discordant women receiving HIV/FP services at the health care facilities within the sub-county.

3.3 Sample Size and Selection

3.3.1 Sample Size

The study considered a sample size of 182 seropositive women in discordant marital relationships for quantitative data, obtained by Fisher's formula (1988) as quoted in Kothari (2004):

$$n = (Nz^2pq)/e^2 (N-1) + z^2pq$$

Where:

n = sample size

N = population size

z = the value of the standard variate that corresponds to some significance level (this is put at 95%, then $z = 1.96$)

p = the estimated prevalence of dual contraception use for discordant seropositive women. This is put at 50%.

e = the margin of error on p (put at 5%)

q = (1-p)

$$n = (344 \times 1.96^2 \times 0.5 \times 0.5) / 0.05^2 (344-1) + (1.96^2 \times 0.5 \times 0.5)$$

$$= 330.3776 / 1.8179$$

$$= 181.74$$

$$= 182$$

On the qualitative side, the study involved fourteen seropositive women in discordant marital relationships for FGDs, fourteen health care providers (Key Informants) and fourteen seronegative men in discordant marital relationships for in-depth interviews.

Sample Selection

Two health facilities with the highest number of seropositive women were purposively selected from each of the seven wards in Nyatike Sub-county, giving a total of fourteen health facilities sampled. This was to ensure adequate geographical representation of the entire Sub-county. Each health facility was purposively allocated thirteen participants who were then selected through simple random sampling. Further, simple random sampling was used to select fourteen seropositive women for FGDs (one for each health facility) and fourteen seronegative men in discordant marital relationships (one for each health facility) for in-depth interviews. Finally fourteen health providers (Key Informants) were purposively sampled (one for each health facility) and were subjected to in-depth interviews.

3.4 Inclusion and Exclusion Criteria

Seropositive women considered for this study were in discordant marital relationship for at least six months prior to study, aged between 18-49 years, attending the selected health facilities, willing to participate in the study and able to give informed consent. Seronegative men included in this study were in HIV discordant marital relationships, aged between 18-59 years and able to give informed consent.

3.5 Study Variables

Dual contraception was defined as consistent condom use for STIs/HIV prevention together with a non-barrier contraceptive like hormonal or intrauterine devices (IUDs) for pregnancy prevention. The variable under study was self-reported dual contraception use for six months preceding the study.

3.6 Data Collection Instruments

Semi-structured questionnaire administered by an interviewer were used to collect quantitative data from seropositive women. Qualitative data were collected using FGD guides designed for seropositive women and in-depth interview guides designed for health care providers and seronegative men. Because these methods enable creation of good rapport between the researcher and the respondents (Strauss and Corbin, 1999), respondents were motivated to freely express themselves and provide true information.

3.7 Data Collection Procedures

Research assistants collaborated with health providers of sampled health facilities to identify study participants. Administration of semi-structured questionnaires to sampled seropositive women followed a rigid procedure laid down. Interviewers asked questions in the form and order prescribed in the questionnaire to enhance comparability of filled in questionnaires so as to ease data analysis. Two FGDs – each involving seven seropositive women, as well as in-depth interviews with health care providers and seronegative men were conducted by researcher himself. All interviews and FGDs took place in a private room with assurance of confidentiality.

3.8 Data Analysis

3.8.1 Quantitative Data Analysis

The quantitative data obtained from semi-structured questionnaires were descriptively analyzed using frequencies and percentages to condense data and make proportional comparisons.

3.8.2 Qualitative Data Analysis

Qualitative data was analyzed using content analysis. Related data from interviewer administered semi-structured questionnaires, FGDs and in-depth interviews were categorized thematically, summarized and analyzed based on study objectives.

3.9 Data Presentation

The quantitative data was presented using frequency tables to show the frequencies and percentage proportions. Qualitative data was presented using thematic descriptions.

3.10 Ethical Considerations

The board of post graduate studies of Rongo University approved this study. Research permit number NACOSTI/P/17/11884/17790 was granted by National Commission for Science, Technology and Innovation (NACOSTI). Permission was also granted by Migori County Commissioner, Migori County Director of Education, Nyatike Sub-county Commissioner, MoH Nyatike Sub-county and administrative authorities of sampled health facilities.

IV. STUDY FINDINGS AND DISCUSSIONS

4.1 Response Return Rate.

Of the 182 seropositive women sampled, 174 (95.6 %) were interviewed while 8 accounting for 4.4% later declined to participate in the study citing privacy.

4.2 Dual Contraception Prevalence

To assess dual contraception prevalence, survey respondents were asked if they had used dual contraception within the last 6 months prior to the study to offer dual protection against unwanted pregnancy and HIV/STIs and the consistency of use for those who reported using. Those not using dual contraception were categorized into those using condoms only, those using modern contraceptives minus condoms and those using traditional methods. The survey revealed that slightly more than half of the seropositive women in discordant marital relationships surveyed had used dual contraception to offer dual protection against unwanted pregnancy and HIV/STIs transmission to uninfected partner in the last six months prior to the study. Out of the 174 respondents, 90 (51.7%) had applied dual contraception against 84 (48.3%) who had not as evident in Table 4.1.

Table 4.1: Dual Contraception Users and Non-Users

Dual Contraceptive Use (n = 174)		Frequency	Percent
Yes n = 90 (51.7%)	Consistently (Every time of sexual intercourse)	51	29.3
	Rarely (non-consistently)	39	22.4
No n = 84 (48.3%)	Condoms only	61	35.1
	Contraceptive minus condoms	3	1.7
	Traditional methods	20	11.5
Total		174	100.0

Source: Field Survey, 2017

Out of the 90 (51.7%) respondents who reported to have used dual contraception in the last six months, 51 (29.3%) used it consistently (every time of sexual intercourse) whereas 39 (22.4%) stated that they applied dual contraception inconsistently. Even though many respondents reported use of dual contraception, the consistent use of dual contraception was low. This is an indication of a low dual contraception prevalence of 29.3% among the study participants despite double risk of HIV transmission to uninfected partner and unintended pregnancy. Further analysis indicates that 53.4% and 86.8% of respondents used non-barrier contraceptives and condoms respectively.

Respondents who reported consistent use of dual contraception cited their need to protect their male partners from HIV infection and prevention of unplanned pregnancy. However, opposition by husband, need for a child, perceived side effects of contraceptives, cultural and religious beliefs prohibiting use of modern contraceptives, diminished sexual urge due to advanced age and illness were reasons given by

respondents who inconsistently used dual contraception. Admitting not using dual contraception consistently, one woman interviewee stated:

"I use condoms inconsistently. It is my husband who decides when to use a condom.... When I suggested that we use a condom, he complained and suggested that I possibly was unfaithful. I use injections too, secretly." **(QI-Seropositive woman, Nyatike sub-County).**

Of the 84 (48.3%) survey respondents who did not use dual contraception, 61 (35.1%) used only condoms for dual protection, 3 (1.7%) used modern contraceptives minus condoms and 20 (11.5%) used traditional methods for pregnancy prevention. Respondents who used condoms only for dual protection were higher than those using dual contraception consistently. They noted that use of condoms plus other contraceptives amounted to duplication of duties as condoms alone could be used to prevent both unplanned pregnancy and HIV transmission. Further, several side effects related to use of modern contraceptives, especially hormonal contraceptives including excessive bleeding, abdominal pain, severe backache, loss of sexual urge, infertility and perceived fetus deformity informed their non-use of modern contraceptives with condoms.

Majority of respondents who used traditional methods used withdrawal and calendar methods. They attributed this to ignorance about dual contraception use, lack of experience with modern contraceptives, fear of being barren and the belief that use of modern contraceptives among seropositive women aged 45 years and above was a waste of time since they are in their menopause stage. They further expressed that male condoms irritate and caused rushes on their private parts. In this regard, three women interviewees stated:

"I have not used any contraceptive. I was ignorant of the available contraceptives and their use when I was younger. Now I am menopausal and don't use contraceptives." **(QI-Seropositive woman, Nyatike sub-County).**

"Being 45 years old, I don't use any contraceptive because it is impossible to conceive at my age. Condoms irritate too." **(QI-Seropositive woman, Nyatike sub-County).**

"I have no children and seriously need a baby; I don't want to die childless, that is why I don't use any method. I may be barren." **(QI-Seropositive woman, Nyatike sub-County).**

Despite high prevalence level of condom use among survey respondents (86.8%), opposition by spouse emerged as a major barrier to condom use among respondents who reported using dual contraception inconsistently, contraceptives minus condoms and traditional methods. They reported that most of their husbands were opposed to the use of condoms quoting several reasons such as fear of their female partners being promiscuous, less sexual satisfaction, pain associated with small sized condoms, not used to condoms, cultural and religious beliefs and the belief that condom causes cervical cancer. Further it was noted that many husbands believed that

so long as their partners were on ARV medication, their chances of being infected were minimal due to viral load suppression, thus neglecting the use of condoms. One of the women interviewee explained:

"My husband said that using condom is equivalent to authorizing me to be promiscuous ... and that so long as I am consistently taking my ARV drugs, he cannot be infected because my viral load will be constantly suppressed." **(QI-Seropositive woman, Nyatike sub-County).**

Further interrogation of this subject in focus group discussions revealed that the majority of women had used dual contraception to offer dual protection in the last six months prior to the study, with few reporting to have used it consistently to prevent both unwanted pregnancy and spread of HIV to uninfected partner. Explaining their reasons for consistent use of dual contraception, three of the women discussants asserted:

"I have used condom together with implants to effectively protect my husband against HIV infection and to avoid unwanted pregnancy." **(FGD-Seropositive woman, Nyatike sub-County).**

"I am in a polygamous family and am the only HIV positive member. I don't want to spread the infection to my husband and co-wives and so we use condoms consistently. I also have an implant just in case something goes wrong." **(FGD-Seropositive woman, Nyatike sub-County).**

"I use dual contraception consistently because my co-wife ran away and left us with three children. I also have five children. This burden is too much so we don't want another child." **(FGD-Seropositive woman, Nyatike sub-County).**

Minority of FGD respondents who reported not using dual contraception gave reasons similar to sample survey respondents such as need for a child, side effects of modern contraceptives, opposition by husband, cultural/ religious beliefs and advanced age associated with diminished sexual urge. In support of these views, two of the women discussants explained:

"My husband doesn't use condoms completely. He fears touching condoms claiming that they cause infections ... (and that) a rash will develop in his private part." **(FGD-Seropositive woman, Nyatike sub-County).**

"Currently I am 45 years old. We rarely have sexual intercourse and even so never use contraceptives since I am past child bearing age. I experience a lot of pain when we have intercoursecondoms irritate." **(FGD-Seropositive woman, Nyatike sub-County).**

These findings were upheld by the majority of the husbands to seropositive women who noted that their partners use dual contraception to prevent bearing more children and HIV infection. Conversely, few husbands who stated that their spouses do not use dual contraception cited the need for

children and desire for sensation. One of the men stated in this regard:

“We don’t consistently use dual contraception because we are only one year into our marriage and we would like to enjoy our conjugal right with utmost intimacy. We are also under pressure from members of our extended family to have children.” (IDI-Seronegative man, Nyatike sub-County).

Even responses from the health care providers interviewed further revealed that there is generally low dual contraception prevalence among seropositive women in discordant marital relationships. They said that majority of seropositive women don’t use dual contraception consistently. They attributed this to their desire to have more children as evidenced by high pregnancy rates among them, desire for sensation causing inconsistent use of condoms, husband refusal, side effects of some modern contraceptives and low levels of education resulting in low understanding and acceptance of dual contraception use.

Even though the findings of this study indicates a low prevalence of dual contraception (29.3%), it is slightly higher than in other studies; 23% in Brazil (Tsuyuki *et al.*, 2003), 22% in South Africa (Moroni *et al.*, 2007), 25% in India (Chakrapani *et al.*, 2011), 27.2% in Nigeria (Lewani *et al.*, 2014), 28% in Kenya (Antelman *et al.*, 2015) and 15.7% in Ethiopia (Gebrehiwot *et al.*, 2017). The high dual contraception prevalence observed in this study may be due to its focus on seropositive women in discordant relationships as opposed to these previous studies that were based on the entire population of seropositive women. Studies have shown that seropositive women in discordant relationships have greater odds of using dual contraception than their counterparts in sero-concordant relationships as well as those whose partner’s HIV status are not known (Gebrehiwot *et al.*, 2017).

It is however lower than 34% reported among seropositive women in Thailand (Munsakul *et al.*, 2016), 38% in Zimbabwe (Magwali *et al.*, 2005), 34% in Namibia (Antelman *et al.*, 2015), and 38.5% in Bungoma County in Kenya (Mulongo *et al.*, 2017). This is so because the previous studies did not focus on the consistency of dual contraception use. Other studies have found that consistent use of condoms may lead to decrease in use of modern contraceptives and vice versa (Haddad *et al.*, 2015). This is a potential cause of the observed high inconsistent use of dual contraception among the study participants (22.4%), perhaps due to discontinuation of either condoms or modern contraceptives and evidently justifies their belief of duplication of duties.

Further, whereas ignorance about modern contraceptives observed among respondents points to the fact that most HIV testing and counseling programs focus exclusively on condom use without discussion on more effective contraceptive methods for pregnancy prevention (Grabbe *et al.*, 2008), the observed partner refusal reflects gender-related power differentials with men being the main decision makers in

matters of sexuality thus hinting to the need for health programs tailored towards enhancing partner communication on family planning as noted by Okigbo *et al.* (2015). However the prevalence of modern contraceptives (53.4%) observed is almost equivalent to 53% prevalence of modern contraceptive in Kenya (KNBS and ICF macro, 2015), perhaps due to persistent health talks by health service providers to scale-up contraceptive uptake in the study area. The observed high use of male condoms (86.8%) corroborate the findings in South Africa (Oni *et al.*, 2003) and Thailand (Munsakul *et al.*, 2016) where 71% and 87.7% seropositive women reported using male condoms respectively. Inadequate knowledge on female condoms may justify its total non-use among the study participants. Personal desire for biological child, real and perceived side effects of modern contraceptives, religious/cultural beliefs and non-acceptance of condoms in marriages were the main barriers to dual contraception use and were consistent with findings in other studies (Chakrapani *et al.*, 2011; Gebrehiwot *et al.*, 2017; Mulongo *et al.*, 2017).

4.3 Most Common Form of Dual Contraception

To determine the most common form of dual contraception used, respondents who reported to have used dual contraception were asked the type of modern contraceptive they used together with condoms to offer dual protection against HIV transmission to uninfected partner and unintended pregnancy. Of the 90 (51.7%) survey respondents who reported using dual contraception, majority 42 (24.1%) used injectables plus condoms, 33 (19.1%) used implants plus condoms, 6 (3.4%) used IUDs plus condoms, and 6 (3.4%) used sterilization plus condoms. Only 3 (1.7%) respondents used pills together with condoms, an indication that it was the least form of dual contraception used among the survey respondents. The missing system represents the 84 (48.3%) respondents who did not use dual contraception as shown in Table 4.2.

Table 4.2: Most Common Form of Dual Contraception

	Frequency	Percent	Valid Percent
Condoms + Injectables	42	24.1	46.7
Condoms + Implants	33	19.1	36.7
Condoms + IUDs	6	3.4	6.7
Condoms + Sterilization	6	3.4	6.7
Condoms + Oral pills	3	1.7	3.3
Total	90	51.7	100.0
Missing System	84	48.3	
Total	174	100.0	

Source: Field Survey, 2017

Combination of condom and injectables was most used because injectables offered privacy especially among seropositive women whose husbands opposed the use of

modern contraception, induced less pain during injection and was effective in pregnancy prevention. Many women who reported husband's refusal to any form of modern contraception opted to use injectables secretly. Two of the woman respondents who used injectables stated:

"I used implants secretly. When my husband realized, he got angry. I stopped and am now using injectables covertly because he cannot detect that I am using it. We use condoms too." (QI-Seropositive woman, Nyatike sub-County).

"I visit the clinic after three months to get my ARVs and that is also when I get the injections that are administered every three months. My husband can't detect because he thinks I only go for HIV clinics to get ARVs." (QI-Seropositive woman, Nyatike sub-County).

The respondents who used implants cited its effectiveness and its long term use in pregnancy prevention. They said that once inserted, it takes 3-5 years before going back to health facilities for FP services. In explaining her preference for implant, one woman stated:

"I prefer implant because it takes a longer period compared to pills and injectables." (QI-Seropositive woman, Nyatike sub-County).

On the other hand, minority respondents who did not use injections and implants cited side effects including excessive bleeding, severe backache, stomachache/abdominal pain, tiredness interfering with domestic chores, loss of sexual urge interfering with their marital sexual obligation, and the belief that they deform fetus and cause infertility. It was further noted that implants were easy to detect by male partners through simple touch, involved some cost during insertion and removal and was believed to cause cancer. Regular visits to health facility for re-injection made injectables unpopular among respondents who used other methods.

Both sterilization and IUDs were less used on equal measure (each 3.4% of survey respondents), possibly because sterilization was associated with permanent inability to conceive hence was unpopular among women who still needed more children. On the other hand, non-availability of IUDs in many health facilities especially dispensaries coupled with detection by spouse during sexual intercourse were noted to compel clients to opt for other readily available contraceptive methods that were easy to use covertly. Further, IUDs were believed to cause cervical cancer, disappear into the womb and that its insertion was a total embarrassment to some respondents. In regard to this, one woman said:

"I don't prefer IUDs because of where it is placed. It embarrasses especially when a male doctor does the insertion." (QI-Seropositive woman, Nyatike sub-County).

Similar to implants, the minority respondents who used IUDs argued that it takes longer period, for instance 12 years thus one does not waste time visiting health facility frequently for FP services. On the same note, respondents who used

condoms together with sterilization (tubal ligation) either noted that they have attained their desired family sizes or sought a permanent solution to potential health complications associated with pregnancy. In support of sterilization, two of the interviewees had these to say:

"I wanted to stop giving birth completely because I had complications during my first and second pregnancy. My uterus blocked my urinal tract. I had to be operated." (QI-Seropositive woman, Nyatike sub-County).

"I went for sterilization because I felt we had enough children." (QI-Seropositive woman, Nyatike sub-County).

Pills were the least used modern contraceptive with condoms because it created pill burden among dual contraceptive users as their health conditions also required prompt adherence to ARV drugs. In addition, some respondents reported that pills could be detected by their spouses resulting in domestic violence. To this extent, one of the women interviewees explained:

"I don't prefer pills. It is difficult to take contraceptive pills together with ARV drugs on daily basis." (QI-Seropositive woman, Nyatike sub-County).

The total none use of vasectomy, as reported by respondents, could be because it was unpopular among the husbands to seropositive women, coupled with the fact that it is male controlled.

Further interrogation of this subject in focus group discussions revealed that majority of seropositive women used injectables followed by implants as the appropriate contraceptives with condoms. The two methods were used based on ease of management, privacy, long term effectiveness, lessening of pill burden and compatibility with the body. To this extent, two women explained:

"I use implants because it offers a longer term solution to contraception, does not increase the burden of taking pills, and does not cause serious side effects on me unlike pills." (FGD-Seropositive woman, Nyatike sub-County).

"I use injection because it is secret, easily manageable, does not affect me seriously and most importantly affords me the secrecy I need. My husband is opposed to modern contraceptives and says he'll divorce me if he realizes that I use them." (FGD-Seropositive woman, Nyatike sub-County).

Minority of FGD participants reported using condoms together with pills, IUDs and sterilization, citing side effects associated with implants and injections. Contrary to survey findings, majority of the husbands to seropositive women interviewed revealed high use of implants with condoms and condom use alone for dual protection among their spouses. This perhaps hints to the fact that many husbands to seropositive women have no idea regarding the contraceptive method used by their partners in conjunction with condoms to offer dual protection. More specifically, they are ignorant on the secret use of injectables by their seropositive wives.

The findings from the interviews featuring health care providers were greatly reflective of the findings of the survey with regard to the most common form of dual contraception for dual protection with majority of healthcare providers stating that many seropositive women used injection plus condoms. They further noted that the use of implants with condoms was on the rise probably because of longer term benefits of pregnancy prevention associated with implants. In an attempt to explain this trend, one health provider interviewee asserted:

“Most of the women we attend to here use injections because it offers them the secrecy they need against their husbands who are opposed to the use of modern FP methods but accepts only condoms for dual protection.” (KI-Healthcare provider, Nyatike sub-County).

The health care providers attributed the low use of IUDs, sterilization and oral pills with condoms among survey respondents to absence of IUDs and sterilization services in most dispensaries, cost of insertion and sterilization as well as transport cost to a distant facility where the services are provided. Similarly they linked low use of pills to pill burden, advice by health providers on use of long-term methods and husband refusal.

This result is consistent with findings of other studies in South Africa (Oni *et al.*, 2013), South East Nigeria (Lewani *et al.*, 2014), Ethiopia (Gebrehiwot *et al.*, 2017), Namibia, Tanzania and Kenya (Antelman *et al.*, 2015) and Kenya (Mulongo *et al.*, 2017) that have also found condom plus injectables as the most commonly used form of dual contraception. The findings of the present study however contradicts the findings in India (Chakrapani *et al.*, 2011) and Thailand (Munsakul *et al.*, 2016) where condom plus sterilization were the most common form of dual contraception used. The observed difference is possibly a consequence of widespread access to sterilization in Thailand and India compared to African countries. Ease of management, privacy and partner refusal cited by respondents as major reasons for widespread adoption of injections are in line with findings in Ethiopia (Gebrehiwot *et al.*, 2017) and Bungoma County in Kenya (Mulongo *et al.*, 2017). Seropositive women whose husbands disapproved contraceptive use resorted to use injectables covertly.

Whereas the proportion of seropositive women using oral pills plus condoms were comparably higher than their counterparts using implants plus condoms in South East Nigeria (Lewani *et al.*, 2014), the present study shows high use of implants (19.1%) compared to oral pills (1.7%) among dual contraception users. This could be due to the fact that there is rising usage of long acting FP methods among couples in East Africa (Izugbara *et al.*, 2018) as a result of health care providers' active promotion of use of long term contraceptives in the region. Further, the low use of IUDs with condoms had also been noted in India (Chakrapani *et al.*, 2011) and was linked to fear of detection by husbands as noted in the present study.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Objective One: To find out dual contraception prevalence among seropositive women in discordant relationships, the study concluded that there is low dual contraception prevalence among the study participants.

Objective Two: To determine the most common form of dual contraception used among seropositive women to offer dual protection, the study concluded that male condoms plus injectables was the most common form of dual contraception used. However the use of male condoms jointly with implants was significantly higher.

5.2 Recommendations for Policy Formulation

1. To find out dual contraception prevalence among seropositive women in discordant marital relationships, the study found low dual contraception prevalence and recommends that both the National and County governments through the Ministry of Health to develop reproductive health programs that intensify efforts in improving knowledge of dual contraception and its critical health benefits among seropositive women to scale-up its use. Such health talks should encourage constructive partner communication and engagement in FP, dispel off misconceptions about modern contraceptives and thoroughly sensitize male partners of seropositive women on the importance of consistent use of condoms in safeguarding their health.
2. To determine the most common form of dual contraception used among seropositive women to offer dual protection, the study found that condoms plus injectables was the most common form of dual contraception used and recommends that the Ministry of Health at the national level in collaboration with Ministry of Health, Migori County to provide a wide range of modern contraceptives in all health facilities particularly female sterilization, vasectomy and IUDs whose supply were noted to be limited in some health facilities. This is to encompass different preferences for modern contraceptive methods to be used together with condoms to offer dual protection. Secondly, it will facilitate the use of long-acting contraceptives for pregnancy prevention together with condoms.

REFERENCES

- [1]. Antelman, G., Medley, A., Mbatia, R., Pals, S., Arthur, G. and Haberland, S. *et al* (2015).
- [2]. Pregnancy Desire and Dual Method Contraceptive use among People Living with HIV Attending Clinical Care in Kenya, Namibia and Tanzania. *J Fam Plann Reprod Health Care*. 2015 January 41(1): e1.doi:10.1136/jfprhc-2013-100784.
- [3]. Bongomin, F., Chelangat, M., Eriatu, A., Onen, B. C., Cheputyo, P., Godmercy, S. A. ... Obol, J. H. (2018). Prevalence and Factors Associated with Contraceptive Use among HIV-Infected Women

- of Reproductive Age Attending Infectious Disease Clinic at Gulu Regional Referral Hospital, Northern Uganda. *Bio Med Research International*. Retrieved from <https://doi.org/10.1155/2018/9680514>
- [4]. Brown, J.L., Hennessy, M., Sales, J.M., DiClemente, R.J., Salazar, L.F., Venable, P.A., et al. (2011). Multiple Method Contraception use among African American Adolescents in four US cities. *Infectious Diseases in Obstetrics and Gynecology* 2011; Jul 18 (Epub):765917.
 - [5]. Brubaker, S.G., Bukusi, E.A., Odoyo, J., Achando, J., Okumu, A., and Cohen, C.R. (2010). Pregnancy and HIV Transmission among HIV-discordant couples in a clinical trial in Kisumu, Kenya. DOI:10.1111/j.1468-1293.2010.00884.x *HIV medicine* (2010).
 - [6]. Chadwick, R.J., Mantell, J.E., Moodley, J., Harries, J., Zweigenthal, V., and Cooper, D. (2011). Safer Conception Intervention for HIV- Affected Couples: Implications for Resource Constrained settings. Volume 19 issue 4 November 2011. Retrieved from www.19-4-148.pdf
 - [7]. Chakrapani, V., Kershaw, T., Chunmugam, M., Newman, P.A., Cornman, D.H., and Dubrow, R., (2011). Prevalence of and Barriers to Dual-Contraceptive Methods Use among Married Men and Women Living with HIV in India. Hindawi Publishing Corporation: Infectious Diseases in Obstetrics and Gynecology Volume 2011, Article ID 376432, 8 pages <http://doi:10.1155/2011/376432>
 - [8]. Curran, K., Baeten, J.M., Coates, J.T., Kurth, A., Mugo, R.N., and Celum, C. (2012). HIV-1 Prevention for HIV-1 Serodiscordant Couples. *Curr HIV/AIDS Rep.* 2012 June; 9(2):160-170. doi:10.1007/s11904-012-0114-z. Retrieved from www.ncbi.nlm.nih.gov
 - [9]. Delvaux, T. and Nostlinger, C., (2007). Reproductive Choice for Women and Men Living with HIV: Contraception, Abortion and fertility. *Reproductive Health Matters* 2007; 15(29 supplement):46-66/0968-8080/065. Retrieved from www.rhms-elservier.com no 20th December 2015.
 - [10]. Eisenberg, D.L., Allsworth, J.E., Zhao, Q., Peipert, J.F. (2012). Correlates of dual-method contraceptive use: an analysis of the National Survey of Family Growth (2006-2008). *Infectious Diseases in Obstetrics and Gynecology* 2012; Apr 17(Epub):717163.
 - [11]. Gebrehiwot, S. W., Azeze, A. G., Robbles, C. C & Adinew, Y. M. (2017). Utilization of dual contraception method among reproductive age women on antiretroviral therapy in selected public hospitals of Northern Ethiopia. *Reproductive health*, (2017); 14:125. doi 10.1186/s12978-017-0390-6
 - [12]. Grabbe, K., Stephenson, R., Vwalika, B., Ahmed, Y., Vwalika, B. M., Chomba, E., Karita, E., Kayitenkore, K., Tichacek, A. and Allen, S. (2008). Knowledge, Use, and Concerns about Contraceptive Methods among Sero-discordant Couples in Rwanda and Zambia. *Journal of Women's Health* Volume 18, November 2009. Doi:10.1089/jwh.2008.1160.
 - [13]. Haddad, L.B., Feldacker, C., Jamieson, J.D., Tweya, H., Cwiak, C., Chaweza, T., et al., (2015). Pregnancy Prevention and Condom Use Practices among HIV infected Women on Antiretroviral Therapy Seeking Family planning in Lilongwe, Malawi. *PLoS ONE* 10(3): e0121039. doi:10.1371/journal.
 - [14]. Haddock, S., Hardee, K., Gay, J., Pawlack, P.M., and Stellini, C. (2008). Comprehensive HIV Prevention: Condoms and Contraceptive Count. Westland Printing Press (WPP).
 - [15]. Higgins J.A. and Cooper, A.D. (2012). Dual use of condoms and contraceptives in the USA. *Sexual Health* 2012; 9 (1):73-80.
 - [16]. Imbuki, K., Todd, C.S., Stibich, M.A., Shaffer, D.N., Sinei S.K. (2010). Factors Influencing Contraceptive Choice and Discontinuation among HIV-Positive Women in Kericho, Kenya. (*Afr J Reprod Health* 2010; 14[4]: 103-114) Retrieved from www.rh10070-1.pdf
 - [17]. Izugbara, C. O., Wekesah, F. M., Tilahun T., Amo-Adjei, J., and Tsala Dimbuene, Z. T. (2018). *Family Planning in East Africa: Trends and Dynamics*. African Population and Health Research Center (APHRC), Nairobi, Kenya.
 - [18]. Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2015. Kenya Demographic and Health Survey 2014. Calverton, Maryland: KNBS and ICF Macro.
 - [19]. Kothari, C. R. (2004). Research Methodology. New Age International Publishers, New Delhi: India.
 - [20]. Lewani, L.O., Onyebuchi, A.K., and Lyoke, C.A. (2014). Dual Method Use for Protection of Pregnancy and Disease Prevention among HIV-Infected women in South East Nigeria. *BMC Women's Health* 2014. Retrieved from <http://www.biomedcentral.com/1472-6874/39>
 - [21]. Lurie, M.N., Williams, B.G., Zuma, K., Mkaya-Mwamburi, D., Garnett, G.P., Sweat, M.D., et al., (2003). Who infects whom? HIV-1 concordance and discordance among migrant and non-migrant couples in South Africa. *AIDS* 2003; 17(15):2245-52.
 - [22]. Magwali, T., Markus, s., Harold, T., & Joelle, B. (2005). How are condoms used in a family planning setting: evidence from Zimbabwe. *Cent Afr J Med.* 2005;51 (7-8):79-84.
 - [23]. Makwe, C.C. and Giwa-Osagie, F. O. (2013). Sexual and Reproductive Health in HIV Serodiscordant Couples. University of Lagos printing press, Lagos: Nigeria.
 - [24]. Matthews, L.T., Crankshaw T., Giddy, J., Kaida, A., Smit, J.A., Ware, C.N. and Bangsberg, D. R. (2011). Reproductive Decision-Making and Periconception Practices Among HIV-Positive Men and Women Attending HIV Services in Durban, South Africa. *AIDS Behav* (2013) 17:461-470 DOI 10.1007/s10461-011-0068-y. Retrieved from www.art%3A10.1007%2F%10461-011-0068-y.pdf
 - [25]. Memeje, O., Cohen, C.R., and Cohan, D. (2012). Evaluating safer Conception Options for HIV-serodiscordant couples (HIV-infected Female/ HIV-uninfected Male): A Closer Look at Vaginal insemination. Retrieved from <http://dx.doi.org/10.1155/2012/587651>
 - [26]. Mulongo, A. M., Lihana, R. W., Githuku, J., Gur, Z., & Karanja, S. (2017). Factors associated with uptake of dual contraception among HIV-infected women in Bungoma County, Kenya: a cross-sectional study. *The Pan African Medical Journal*. 2017;28 (Supp 1):2. doi: 10.11604/pamj.supp.2017.28.1.9289
 - [27]. Munsakul, W., Lolekha, R., Kowadisaiburana, B., Roongpisuthipong, A., Jirajariyavej, S., Asavapiriyant, S., ..., Martin, M. (2016). Dual contraceptive method use and pregnancy intention among people living with HIV receiving HIV care at six hospitals in Thailand. *Reproductive Health*, (2016) 13:8. doi 10.1186/s12978-016-0123-2
 - [28]. Okech, C.T., Wawire, W.N., and Mburu, T.K. (2011). Contraceptive Use among Women of Reproductive Age in Kenya's City Slums. *International Journal of Business and Social Science Vol. 2 No. 1; January 2011*. Retrieved from www.contraceptive-use-among-women-of-reproductive-age-in-Kenya.pdf
 - [29]. Okigbo, C.C., Speizer, S.I., Corroon, M. and Gueye, A. (2015). Exposure to Family Planning Messages and Modern Contraceptive Use among Men in Urban Kenya, Nigeria and Senegal: A cross-Sectional Study. Retrieved from www.ncbi.nlm.nih.gov
 - [30]. Oni, E.E., Ross, A., Van der Linde, S. (2013). Contraceptive practices amongst HIV-positive women on antiretroviral therapy attending an ART clinic in South Africa. *Afr J Prm Health Care Fam Med*. 2013;5(1), Art. #461, 6 pages. <http://dx.doi.org/10.4102/phcfm.v5i1>.
 - [31]. Orodho, A. J. & Kombo, D.K. (2002). Research Methods. Nairobi: Kenyatta University, Institute of Open Learning.
 - [32]. Patterson, S., Zhang, W., Salters, K., Chen, Y., Ogilvie, G., Hogg, R., and Kaida, A. (2014). Patterns and Predictors of dual Contraceptive Use among Sexually Active Treatment Experienced Women living with HIV in British Columbia, Canada. <http://www.biomed.com>
 - [33]. Paul, K.M., Koskei, A., Robert, T. and Amon, C., (2014). Determinants of Use of Modern Family Planning Methods: A Case of Baringo North District, Kenya. *Science Journal of Public Health*. Vol.2, No.5, 2014, pp.424-430. doi: 10.11648/j.sjph.20140205.18

- [34]. Sagay, A.S., Onakewhor, J., Galadanci, H., and Emuveyan, E.E. (2006). HIV Status of Partners of HIV Positive Pregnant Women in Different Regions of Nigeria: Matters Arising. *Afr J Med Med Sci* 2006;35 Suppl:125-9.
- [35]. Strauss, A., & Corbin, J. (1990). Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Newbury Park: Sage.
- [36]. Teklu, T. and Davey, G. (2008). Which factors influence North Ethiopian Adult's use of dual protection from unintended pregnancy and HIV/AIDs? *Ethiop.j Health Dev.* 2008:22(3)
- [37]. Tsuyuki, K., Barbosa, M. R. and Pinho, A. A., (2013). Dual Protection and Dual Methods in Women Living with HIV: The Brazilian context. Hindawi Publishing Corporation. Journal of Sexually Transmitted Diseases volume 2013, Article ID 540789, 8pages. Retrieved from <http://idx.doi.org/10.1155/2013/540789>
- [38]. World Health Organization (WHO), (2016). Number of people (all ages) living with HIV Estimates by country. Retrieved from <http://apps.who.int/gho/data>