

The Impact of Serodiscordance on the Affective, Sexual and Reproductive Life of HIV Patients Presenting to Imo State University Teaching Hospital (IMSUTH) Orlu, Imo State Nigeria

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Abstract

Introduction: Human Immunodeficiency Virus (HIV) is a recognized health issue. As the virus continues to spread and neither a vaccine nor cure exists, its prevention remains the key strategy for curbing the pandemicity of the disease. Serodiscordance refers to people of different HIV serum antibody status, i.e., opposite serum antibody test results for couples or regular sexual partners. Serodiscordant relationships are faced with daily challenges that include but not limited to emotional, preventive health, self-discipline and preconception and reproductive issues. Understanding the effect of serodiscordance on the affect, sexual and reproductive life of affected couples will help develop patient care programs that improve their quality of life.

Methods: The study design was cross-sectional to determine the impact of serodiscordance on the affective, sexual and reproductive life of HIV Serodiscordant couples living in Imo state Nigeria. Data collection was through a psychosocial questionnaire, focus groups, and individual interviews. The study was conducted at Imo State University Teaching Hospital (IMSUTH). It is situated in Umuna, a town in Orlu Local Government Area of Imo State.

Results/Discussion: The required sample size was determined to be serology positive 278 participants. Among 84 patients who had HIV seronegative partners; 33 were male. Out of the 42 patients that used a condom, 39 had told their partners about their status. Fears, guilt feelings can arise, negatively impacting patient sexuality as our study ascertained that a total of 54 (64.3%) patients out of the 84 discordant couples feared that they would transmit the infection to their partner regardless of counseling on best practices to reduce horizontal transmission.

Conclusions: Serodiscordance remains a significant contributor to the increased risk of horizontal transmission in sub-Saharan countries. Our study revealed that the impact of serodiscordance goes beyond the spread of disease. It impacts the affect, sexual and reproductive lives of affected couples leading to an overall decrease in patient quality of life. Lastly, future studies on this topic should be back with real-time laboratory screening tests, and couples should be encouraged to participate together to ensure transparency.

Keywords: Serodiscordant couple; Affect; Sexuality; Prevention; Reproduction; Horizontal transmission; Condom use

Introduction

Background

Human Immunodeficiency Virus (HIV) is a well-recognized health issue. As it continues to spread and neither a vaccine nor cure exists, its prevention remains the key strategy for curbing the pandemicity of the disease. Prevention of HIV transmission is a priority for most countries. The most prevalent mode of HIV transmission is sexual contact also called horizontal transmission *via* [1,2]. Thus, its prevention is closely linked to practices that promote healthy

sexual behaviors and reproductive health among Serodiscordant couples. Such preventive programs have been targeted at safer sexual behaviors. However, sexuality is a vital part of being human as it influences intimate human relationships [3]. Sexuality can be understood as a driving force guiding the individuality not only towards reproduction but also towards pleasure, love and maintaining a healthy quality of life [4]. HIV Serodiscordant couples face considerable challenges relating to maintaining healthy sexual, emotional reproductive life due to various factors that include fear for horizontal transmission.

The term “serodiscordant couple” refers to an intimate partnership in which one person is HIV-positive, and the other is HIV-negative [1]. In research studies, the “couple” relationship is typically defined by marital, co-habiting or co-parenting status or by the length of relationship (e.g., minimum of 3-6 months), intention to stay together, or reporting a certain minimum number of sexual acts with this partner within a given timeframe [5]. Serodiscordance is common in many countries in Sub-Saharan Africa with generalized HIV epidemics [6]. Approximately two-thirds of infected couples are serodiscordant [7]. Prevalence of serodiscordance among couples was estimated to be 52% in Nigeria [8]. This high incidence may be due to improvements in the recent years that have improved the health of HIV positive individuals leading to an increase in the number of HIV discordant couples. The high rate of stigma and discrimination which is due primarily to ignorance presents as a significant challenge that discordant couples face among themselves and in the community. Seroconversion is high as couples or regular sexual partners take little or no prevention. This unhealthy behavior may be due to lack of timely identification and availability of effective and efficient preventive programs for those affected. A Study conducted by Okonko and Nnodimfound that peak HIV prevalence occurred in the 21-30 years age group and females accounted for the highest infection burden compared to males in Sub-Saharan Africa [9]. Other factors that were associated seroconversion disparities between couples included extramarital affairs, alcoholism, and duration of marriages. This has necessitated recommendations for behavioral change among affected couples such as safer conception service which has been widely adopted in most sub-Saharan countries. Safer conception service entails practices that help minimize horizontal transmission.

Purpose of study

Understanding the impact of sexuality and individual affect on the quality of life of individuals living with HIV/AIDS will help in the development and promotion of behavioral, reproductive and sexual practices among this population. The purpose of this study is to understand the correlation and impact of serodiscordance on the affective, sexual and reproductive life of HIV Serodiscordant couples living in Imo state Nigeria.

Usefulness of study

The importance of maintaining an excellent emotional state in individuals living with HIV/AIDS poses a significant challenge, especially among Serodiscordant couples. Variables such as location, occupation, educational background and quality of couple counseling received tend to influence the impact of serodiscordance on the lives of affected pairs [10]. Currently, there are limited guidelines in the prevention of horizontal transmission of HIV among couples or cohabiters that considers the impact of serodiscordance on the affective, sexual and reproductive life of the affected relationship. According to a study by Onovo et al., [6] the prevalence of serodiscordance in Nigeria was found to be 52% [6]. At this rate there is no doubt that serodiscordance is a vital source of horizontal transmission [11] and gaining a better understanding of its impact in the quality of life (i.e., affective, sexual and reproductive) will help curtail spread of the disease [3,12].

Methods

The purpose of this study is to understand the correlation and impact of serodiscordance on the affective, sexual and reproductive life of HIV Serodiscordant couples living in Imo state Nigeria. This chapter describes the research design, the research methods,

confidentiality, steps taken to ensure the protection of human subjects, and the limitations of the research.

Research design

Being an observational study, the study design was cross-sectional to determine the impact of serodiscordance on the affective, sexual and reproductive life of HIV Serodiscordant couples living in Imo state Nigeria.

Data collection

Data collection was through a psychosocial questionnaire, focus groups, and individual interviews. The survey was self-administered for those who were literate, interviewer for those who were illiterate and the option to participate in the focus group was open to all participants. The questionnaire was semi-structured in line with the objectives of this study. Proportionally simple random sampling was done on different clinic days till the minimum sample size was attained.

Data collection dates

Data for this research was collected between August of 2012 to October of 2012. Data was collected on clinic days which fell three times a week (Monday-Wednesday).

Sample frame

The study was conducted at Imo State University Teaching Hospital (IMSUTH). It is situated in Umuna, a town in Orlu Local Government Area of Imo State. Orlu is the 3rd largest city in Imo State with an estimated population of 420,000 and is bordered by Njaba, Nkwere, Orsu, Oru and Ideato Local Government Areas. Umuna is made up of 3 electoral wards which are Ezedike, Ebenere, and Uzubi [13]. According to the Nigerian Demographic and Health Survey 2013, Umuna has a total population of 73,852 adults 18 years and above (37032 females and 36,820 males). Most of the inhabitants of the area are traders and farmers with a few engaged in employed labor such as civil service and factory work. Most of them are Christians of various denominations. The population is predominantly Ibo.

IMSUTH is a 250-bed tertiary health institution founded in 2003 and provides specialist services in Internal Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics and Community Medicine. This study was carried out in the HIV clinic of the Community Medicine department.

Study population

The study population was HIV/AIDS patients that attend IMSUTH for antiretroviral drug therapy. The nature of their employment varied from low-skilled occupation to highly-skilled occupation and was captured with the data collection tools employed.

Inclusion criteria:

- Patients who were above 18 years of age and the partner also above 18 years
- Patients who had been in a sexual relationship for at least one year
- Patients whose partner is HIV-negative patients in a heterosexual relationship

Exclusion criteria:

- Those who were in a recently established relationship <1 year
- Patients who were found out their HIV serostatus in <1 year

The patients and their partners were not required to be monogamous, cohabiting or to have formalized their relationship through marriage or a civil union. No HIV testing or documentation was used to confirm the HIV status of their HIV-negative partner.

Sample size

The sample size was determined using the sample size determination formula for a single population.

$$n = \frac{z^2 PQ}{d^2}$$

n= Required sample size

Z= Confidence Interval 95%, p= <0.05

P= Estimate Prevalence of serodiscordance in Nigeria

d= Margin of error 5%

Q= 1-P

Estimated Prevalence of serodiscordance in Nigeria was adopted as 52% [1]. The prevalence adopted for this study was deemed to be the "point prevalence." Point prevalence is defined as the number of people who have the disease divided by the total population at a given point in time [14]. This enabled the researchers to calculate the minimum required sample size for the study.

Data analysis

Data obtained was analyzed and presented using descriptive statistical methods.

Ethical consideration

Ethical approval was sought from IMSUTH's ethical committee with a formal letter. Verbal consent was taken from the counselors and health care providers. Patients who qualified for the study were recruited through the health care providers, and counselors and their informed consent was obtained verbally. For the confidentiality and privacy of the respondents, the interview was conducted in a well-confined room. All authors hereby declare that the study was carried out in line with ethical procedures as outlined in the Helsinki declaration of 1964.

Methodological rigor

Rigor explained how we demonstrate integrity and competence, a way of describing the legitimacy of the research process [15]. The research focused on trustworthiness. How trustworthy the research was reflected in the paper's credibility, transferability, dependability, confirmability and the goodness of the study. Reliability was established by ensuring prolonged engagement, persistent observation, triangulation, peer debriefing, negative case analysis, and referential Triangulation involved using multiple data sources in an investigation to produce understanding, examining the consistency of different data sources from within the same method and applying various theoretical perspectives in the examination and interpretation of the data. Dependability (comparable with reliability) is achieved through an adequacy [8] process of auditing [15]. Verification entails consistent review with professors and peers. Confirmability relies on objectivity and reduction of observer bias. The researcher subjected research to an objective audit by discussing result findings with peers and supervisors.

Limitations of Study

The researchers did not have the exact number of HIV patients presenting to IMSUTH because many of them had died, stopped

attending the clinic or relocated. The patients that participated gave self-reported information on sensitive issues that we could not verify its authenticity. We could not conduct couple interviews thus not allowing complexities and contradictions of discordant relationships to be explored. The researchers encountered attrition from some patients who declined to participate. Most of all, since the data used for this research was gathered in 2012 and was done within a short time frame; the researchers suggest that a recent study is carried out as a follow-up.

Furthermore, the HIV status of participants was obtained *via* oral or self-administered questionnaires which questions the validity of partner status or/and initial participant reports. Despite these, we believe that the study made a significant contribution to knowledge on serodiscordance, the issues faced by discordant couples and strategies they have used in preventing of horizontal transmission. Finally, conclusions drawn from this study can be used by government agencies to develop guidelines that put into consideration the impact of serodiscordance on the affect, sexual and overall reproductive life of affected couples.

Results

From the formula as mentioned earlier, the required sample size was determined to be 278. Participants who met the eligibility requirements were recruited using a simple random sampling method. The result was arranged in themes in line with the objectives of this study. The themes are as follows:

1. Socio-demographic/behavioral determinants
2. Impact of serodiscordance on affective and sexual life
3. Knowledge of Serodiscordance
4. Psychosocial support
5. Reproductive health and childbearing

Socio-demographic/Behavioral determinants

In this section, patients were grouped based on sex, age, marital status, duration of the marriage and condom use (Table 1) to determine the prevalence of HIV Serodiscordance in relation to Socio-demographic and behavioral determinants. Among 84 patients who had HIV seronegative partners, 33 were male.

Furthermore, out of the 42 patients that used a condom, 39 had told their partners about their status, while three had not. For those who did not use a condom, 12 out of 18 of them told their partners, while six had not told their partner.

Another vital part of the socio-demographic report was the distribution of occupation among participants. Figure 1 displays the percentage of profession reported by participants and grouped from low-skilled which our study identified as tailoring, mechanic, an electrician with little or no educational background to highly-skilled occupations such as civil servant with a bachelor's degrees or higher.

Knowledge of serodiscordance

This section shows how active healthcare workers educate patients on the dynamics of the spread of HIV and how to prevent and protect themselves and their loved ones. From the results displayed in table 2, more than half of the study group (55.4%) had no knowledge of serodiscordance. Lack of knowledge of serodiscordance poses a challenge to the effective prevention of HIV and improvement of the individual quality of life as an understanding of both parties are needed for effective cooperation.

Table 1: Socio-Demographic/ Behavioral Determinants.

Number	Percentage (%)	
Sex		
Male	33	39.3
Female	51	60.7
Age Range (Years)		
18-22	7	8.3
23-27	17	20
28-32	13	15.5
33-37	21	25
38-42	11	13.1
43-47	10	12.3
>48	5	6
Marital Status		
Single	15	17.9
Married	69	82.1
Duration of Marriage (Years)		
<10	27	39.1
>10	42	60.9
Condom Use		
Use	42	50
Did not Use	18	21.4
Did not indicate	24	28.6

Table 2: Participant Awareness of HIV Serodiscordance.

Knowledge	Number	Percentage
Had Knowledge	124	44.6%
No Knowledge	154	55.4%
Total	278	100%

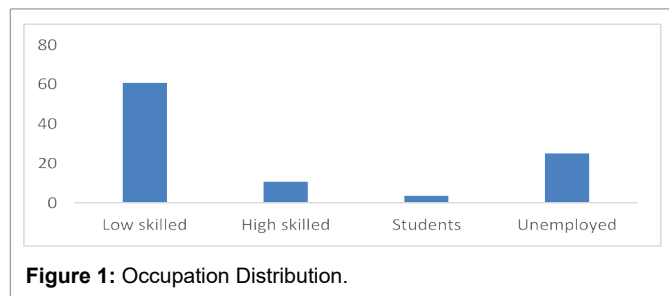


Figure 1: Occupation Distribution.

Impact on affective and sexual life

The effect of serodiscordance on affective and sexual life was determined using only the proportion of patients whose partners were HIV negative (discordant). A total of 84 patients had discordant partners. A total of 54 (64.3%) patients out of the 84 discordant patients feared that they would transmit the infection to their partner, while 20 (35.7%) patients had no fears (Figure 2). Those who had no concern had no prevention strategies, while those who feared to transmit HIV to their partner used prevention strategies including condom use, abstinence, praying to God and no strategy at all (Table 3).

This study shows the effect of having a positive HIV status on the sexual lives of patients. Sexual life dramatically contributes to the quality of life and any defect in this vital part of living contributes to most be seemed as a suboptimal quality of life (Table 4). Human sexuality is one of the critical determinants of the quality of life and

may be significant in maintaining proper human relationships and the feeling of being an integral part of the society [16]. In the case of Seropositive individuals, especially those not correctly counseled (Table 5), problems in sexuality are because of morals and emotions and not a result of a physical effect of the infection. However, for this research, only the population who positively identified themselves as having negative spouses was assessed on the impact of HIV on sexual life.

The researchers further assessed the quality and efficacy of counseling received by patients. The effectiveness of couple counseling was ascertained by asking the forty-two participants that received advice how useful the health education, resources and information provided by the counselor was to their perception and understanding of the condition and its management (Figure 3).

Furthermore, the distribution of type of counselor in those counseled was evaluated (Table 6). As shown in figure 3, out of the 42 couples assessed six reported to be unsatisfied with the counseling received and did not adhere to health practices conveyed in the sessions. However, Confidential HIV serotesting with counseling has been shown to cause a substantial increase in condom use and is associated with a lower rate of new HIV infections [17,18]. Couples' HIV Counselling and Testing (CHCT) services remain to be critical in preventing new infections and should widely be promoted as an entry point in treatment as prevention strategy in order to protect uninfected partners in HIV serodiscordance relationships [18].

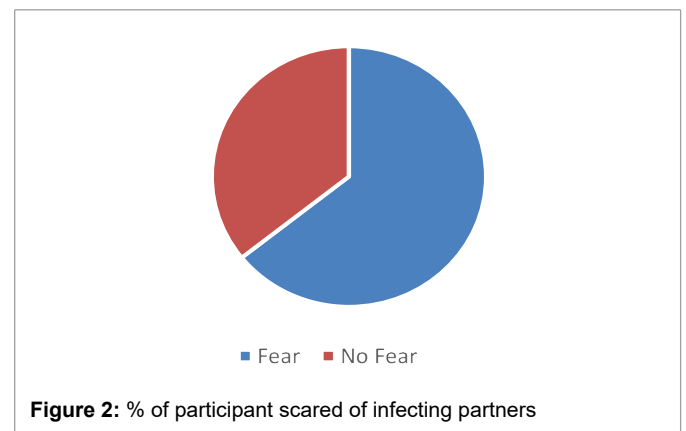


Figure 2: % of participant scared of infecting partners

Table 3: Prevention strategies employed by participants.

Strategy	Number	Percentage
Condom Use	18	33.3%
Abstinence	12	22.2%
Pray to God	3	5.6%
None	21	38.9%
Total	54	100%

Table 4: Effect on sexual life.

Variable	Number (n=84)	Percentage (%)
The decreased desire of sex	42	50
Decreased coitus	45	53.5
Abstinence	36	42.9
Conflict in relationship	15	17.9

Table 5: Couple Counseling.

Counseling	Number	Percentage (%)
Received	42	50
Did not Receive	36	42.9
Did not Indicate	6	7.1

Table 6: The Distribution of Type of Counselor in those Counseled.

Type of Counselor	Number	Percentage
Doctor	9	21.4
Nurse	18	42.9
Pastor	3	7.1
Health Worker	9	21.4
Doctor and Nurse	3	7.1
Total	42	100

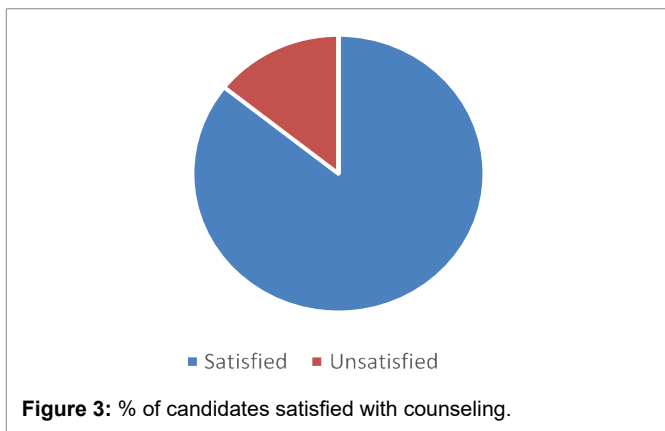


Figure 3: % of candidates satisfied with counseling.

Psychosocial support

A total of 66 patients out of 84 discordant couples had told their partners about their HIV positive status. Table 7-9 shows reported reactions after being informed of partner's status.

Reproductive issues

The majority of the participants, i.e., 72 (85.7%) patients have had no children since they become positive, while 12 (14.3%) have had children since they became positive. Those who had children after being diagnosed conceived through the natural method of conception. Table 9 illustrates participants desire to have children after diagnosis and awareness of serodiscordance between them and their partners. Table 10 shows the desired means of conception. (Table 11)

Discussion

Impact of serodiscordance on sexuality

From our study, a total of 54 (64.3%) patients out of the 84 discordant couples feared that they would transmit the infection to their partner. Sexuality after HIV infection is such that there are changes and adjustments in the relationship between Serodiscordant couples. Fears, guilt feelings can arise, negatively impacting patient sexuality. Our study proved that fear could occur, as more than half of the participants had feelings of fear of infecting their partners.

Other difficulties experienced relating to sexual practice maintaining abstinence or celibacy as contact sex has a high probability of spread. A significant proportion (22.2%), abstained from sex in our study. The

Table 7: Adverse Partner Reaction towards Knowledge of Partners Status.

Reaction	Number	Percentage
Angry	15	22
Sad	18	27
Understanding	24	36.4
Don't Know	6	9.1
Indifferent	3	4.5
Total	66	100

Table 8: Support from Negative Partner: Part A.

Variables	Number (N=66)	Percentage
Support Partner	60	90.1
Does not Support	6	9.9

Table 9: Support from Negative Partner: Part B.

Variables	Number (N=66)	Percentage
Encourages drug adherence	57	86.4
Does not encourage drug adherence	9	13.6

Table 10: Desire for children.

Variables	Number	Percentage
Wanted children	39	46.4
Did not wish to children	27	32.2
Did not indicate	18	21.4
Total	84	100

Table 11: Distribution of preference for means of conception.

Method	Number (N=39)	Percentage
Natural	27	69.2
Assisted Reproduction	9	23.1
Did not Indicate	3	7.7

significance of this finding was that those who had feelings of fear and guilt had strategies that they adopted to prevent HIV transmission to their partners such as condom use and abstinence from sex. Lastly, our research proved that sexual response alterations occur in discordant relationships. As much as 50% of the patients experienced a decreased desire for sex, and there was a significant reduction in the frequency of coitus as was reported by 53.6% of the patients. As high as 17.9% of the patients have had conflicts in their relationship, as a result of their being HIV-positive. The coping strategies used by these couples included the use of condom and abstinence from sex.

Sexuality concerning marital status and extra-marital affairs

Majority of the patients, i.e., 69 were married (82.1%) and those whose duration of marriage was more significant than ten years were 42 out of the 69 (60.9%). Twelve patients (14.3%) had a history of extramarital affairs. Although it was not clear if the reported extramarital affairs happened before or after knowing their HIV serostatus. Information on the time and reason participants engaged extra-marital affairs in relation to participants' report of fear of horizontal transmission to partner would have given the researchers insight on the impact of "fear" on the current rate of serodiscordance. Furthermore

addressing a crucial research question is the fear of spread to spouse or partner fueling extra-marital affair.

Communication between partners

A total of 66 patients told their partners about their HIV positive status. Data collected showed that 90.9% reported that they received support from their negative partner and 86.4% reported that their partners encouraged them to take their ART drugs. 45 patients (53.6%) out of 84 had told their family about their status. This shows that their negative partners engaged in the emotional, medical and practical management of HIV when they are counseled on the dynamics of being in a serodiscordant relationship.

Impact of serodiscordance on reproduction

From our study, 39 patients (46.4%) desired to have children, among which, 69.2% preferred the natural method of conception while 23.1% preferred assisted reproduction. The disparity in the choice of family planning could be attributed to culture and religion. However, lack of available cost-effective alternatives and knowledge of healthy sex practices can be a contributor. This phenomenon also contributes to the spread of disease *via* horizontal transmission. Grabbe et al. [19] argued that lack of knowledge among serodiscordant couples is common among couples in reproductive age population (18-42 years) in third world countries. The unique needs of serodiscordant couples regarding balancing fertility desires and HIV risk, mark them out as a critical target group for the prevention of heterosexual and mother-to-child HIV transmission. One could conclude that serodiscordance plays a negative role among discordant couples who wish to achieve fertility in that it increases the chances of horizontal transmission and the fear of infection deprives affected couples of procreation [20]. Rispel, Metcalf, Moody, Cloete, and Caswell (2011) further stated that those without children were more likely to desire children than those who already had children, although this desire was influenced by fear of HIV transmission to the negative partner and professional medical advice [20].

Conclusion

Serodiscordance remains a significant contributor to the increased risk of horizontal transmission in sub-Saharan countries. Our study revealed that the impact of serodiscordance goes beyond the spread of disease. It impacts the affect, sexual and reproductive lives of affected couples leading to an overall decrease in patient quality of life. Knowledge of serodiscordance, lack adequate couple counseling and health education on ways to limit horizontal transmission, fear, cultural, community, and social stigma and patient fertility desires were identified as factors that drive the limiting effects of serodiscordant relationships.

Recommendations

The following recommendations will help develop programs that can help discordant couples make informed sexual and reproductive choices, maintain healthy, mutually supportive relationships. They include;

- 1) Ensure that all discordant couples receive couple counseling to address the effect of discordance on their affective and sexual life.
- 2) Develop holistic and comprehensive HIV programs for married couples and the vulnerable age groups implicated in this study.
- 3) Address stigma and discrimination in our society by proper education and it will go a long way in increasing the psychosocial support offered to positive patients.

4) Research recommends the establishment of programs that monitor and encourage behavioral change among discordant couples.

5) Alternative fertility methods should be made affordable to Serodiscordant couples.

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Data Sharing Statement

Extra data is available by emailing the author at dr.nedu@hotmail.com

Contributorship Statement

CCN, CNU and CKI Contributed to the design, data collection and implementation of the research, to the analysis of the results. CCN wrote the manuscript. Finally, CCN and RG and SSS participated in the final proofreading and editing of the final copy of the manuscript.

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References

1. Muessig KE, Cohen MS (2014) Advances in HIV Prevention for Serodiscordant Couples. *Curr HIV/AIDS Rep* 11: 434-446.
2. Shaw GM, Hunter E (2012) HIV Transmission. *Cold Spring Harb Perspect Med* 2: a006965.
3. King R, Wamai N, Khana K, Johansson E, Lindkvist P, et al. (2012) “Maybe his blood is still strong”: a qualitative study among HIV-sero-discordant couples on ART in rural Uganda. *BMC Public Health* 12: 801.
4. Lankveld JV, Jacobs N, Thewissen V, Dewitte M, Verboon P (2018) The associations of intimacy and sexuality in daily life. *J Soc Pers Relat* 35: 557-576.
5. Jiwatram-Negrón T, El-Bassel N (2014) Systematic Review of Couple-Based HIV Intervention and Prevention Studies: Advantages, Gaps, and Future Directions. *AIDS Behav* 18: 1864-1887.
6. Onovo AA, Nta IE, Onah AA, Okolo CA, Aliyu A, et al. (2015) Partner HIV serostatus disclosure and determinants of serodiscordance among prevention of mother to child transmission clients in Nigeria. *BMC Public Health* 15: 827.
7. Curran K, Baeten JM, Coates TJ, Kurth A, Mugo NR, et al. (2012) HIV-1 Prevention for HIV-1 Serodiscordant Couples. *Current HIV/AIDS Rep* 9: 160-170.
8. Erhabor O, Akani C, Oporum H, Ejele O, Nwauche C (2006) HIV serodiscordance among Nigerian couples: Challenges and controversies. *Nigerian Medical Practitioner* 48.

9. Okonko IO, Nnodim LC (2015) Trends in HIV prevalence from 2008 to 2012 among young adults in Port Harcourt, Nigeria. *Afr Health Sci* 15: 776-788.
10. Zhu Q, Zhu P, Zhang Y, Li J, Ma X, et al. (2015) Analysis of Social and Genetic Factors Influencing Heterosexual Transmission of HIV within Serodiscordant Couples in the Henan Cohort. *Plos One* 10: e0129979.
11. Lincoln YS, Guba EG (1985) *Naturalistic Inquiry*. Sage Publications, California.
12. Kanekar AS (2011) HIV/AIDS Counseling Skills and Strategies: Can Testing and Counseling Curb the Epidemic? *Int J Prev Med* 2: 10-14.
13. National Population Commission (NPC) Nigeria, ICF International (2014) *Nigerian Demographic and Health Survey 2013*. NPC and ICF International, Nigeria and USA.
14. Gonzalez K (2015) *Point Prevalence: Definition & Study*. Chapter 3, Lesson 10.
15. Tobin GA, Begley CM (2004) Methodological rigor within a qualitative framework. *J Adv Nurs* 48: 388-396.
16. Zanni GR, Wick JY, Walker BL (2003) Sexual health and the elderly. *Consult Pharm* 18: 310-322.
17. Allen S, Tice J, Perre PV, Serufulira A, Hudes E, et al. (1992) Effect of serotesting with counseling on condom use and seroconversion among HIV discordant couples in Africa. *BMJ* 304: 1605-1609.
18. Ngilangwa DP, Ochako R, Mboya BA, Noronha RH, Mgomella GS (2015) Prevalence and predictors of HIV serodiscordance among cohabiting couples tested in northern Tanzania. *Pan Afr Med J* 22: 275.
19. Grabbe K, Stephenson R, Vwalika B, Ahmed Y, Vwalika C, et al. (2009) Knowledge, Use, and Concerns about Contraceptive Methods among Sero-Discordant Couples in Rwanda and Zambia. *J Womens Health* 18: 1449-1456.
20. Rispel LC, Metcalf CA, Moody K, Cloete A, Caswell G (2011) Sexual relations and childbearing decisions of HIV-discordant couples: An exploratory study in South Africa and Tanzania. *Reprod Health Matters* 19: 184-193.