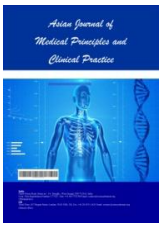

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Evaluating ill- Psychosocial Issues among HIV Discordant and Concordant Couples: A Mixed Method Cross-Sectional Comparative Study

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Successful practical intervention strategies thrive on shared responsibility and global solidarity. Understanding of psychosocial status of this high-risk group could inform measures that sustain self-care and maximize benefits from antiretroviral therapy (ART).
Objective: To determine and compare the ill- psychosocial issues and challenges of HIV discordant and concordant couples in comprehensive health centers in Anambra, Nigeria.
Materials and methods: A mixed method cross--sectional comparative study of 289 (148 HIV-concordant and 141 HIV-discordant) couples, selected by two- stage sampling. Quantitative data were collected by interview using semi-structured questionnaire and analysed with statistical package for social sciences version 22.0. Chi-square and Fishers exact tests were used as appropriate, to determine associations between variables and p values $\leq$ 0.05 were significant. Qualitative information was obtained by focus group discussions (FGDs).
Results: Uncertainty and anxiety/ fear constitute the commonest form of ill psychological feelings in 189(65.4%) male and 102(35.3%) female respondents, with more of the males being in

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discordant relationships (p=0.018). Also, 138(46.0%) had discrimination from the family, more on the discordant (p=0.000). Again, more of discordant couples faced discrimination at the workplace, emotional problems related to HIV; difficulty with adherence to ART and problem with sexuality in marriage ($p \leq 0.05$) respectively.

Conclusions: This study reveals that both sets of couples, though more on the discordant side, faced uncertainty, anxiety/fear, then stigma and discrimination from the family, workplace, etc. Improved sustained sero- status based counselling and psycho- social support is recommended.

Keywords: Couples; sero-discordance; HIV; ill-psychological; Nigeria.

1. INTRODUCTION

"ill-psychological" effects result from health conditions involving changes in emotion, thinking or behavior (or a combination of these) and are associated with distress and/or problems functioning in social, work or family activities [1]. The negative effects of psychosocial issues have remained issues of global public health concern, influencing all life domains: living, learning, working and establishing friendships, [2,3] exerting multiple burden on the affected, leading to social exclusion, restricted involvement in important life activities, and poor tendency to seek treatment which at last hampers one major dimension of quality of life [4,5] These effects also influence social interactions, productivity, acceptance, adherence to medication, frequencies of hospitalization and healthcare costs [3].

Series of intricate occurrences are repeatedly documented with regards to HIV infection. It is often noted that some people have incessant unprotected sexual intercourse with their infected partners and yet they do not contact the infection. Discordance presents such scenario of HIV infection [6]. A sero- discordant relationship also known as mixed-status, is that in which one of the partners is HIV positive and the other is not. This contrasts with seroconcordant relationships, in which both partners are of the same HIV status [7,8].

Key ill- psychosocial feelings adumbrated by Beckerman in his case report of sero- discordant couples in New York, include: fear of Human Immunodeficiency Virus (HIV) transmission, negative changes in intimacy, changes in reproductive intentions, and uncertainty concerning their future health and wellbeing [9]. Previous `systematic review had outlined similar psychosocial conditions as well as difficulty in disclosing HIV positive sero-status to family, colleagues, associates and friends [10].

It has been documented that sero- discordance inhibited emotional proximity and sexual intimacy mainly because the HIV sero- positive partner was afraid of transmitting the infection to the sero- negative partner [11]. There is a gender-preference in rapid increase in prevalence of HIV infection among women [12]. This might be linked to high levels of sero-discordant couples and male dominance, increasing transmission from male to female partners over time. However, Bellan *et al.,* argued that extra- rather than intra- couple transmission is likely a more validated source of acquiring new infections [13] In tandem with this report, an analytical study conducted in 18 countries in Sub-Saharan Africa, revealed that 21-60% of HIV infections (27-61% in men and 21-51% in women), are from extra- couple transmission [13]

Four main challenges faced by sero-discordant couples have been reported. These are: dealing with discordance- linked emotional problems, issues of reproduction, preparing to adapt to the shock of the often unknown- filled future and disclosing the status to family and friends [14]. A qualitative study conducted on the knowledge, challenges and prevention strategies for HIV discordant couples in Uganda reported challenges faced by these couples to include: disclosure, limited knowledge of HIV discordance, feelings of isolation and strained relationships following disclosure, of their HIV-status to their partner [6]. A cross sectional study by Erhabor *et al*., in the Niger Delta region of Nigeria showed challenges faced by discordant couples such as stigma by the immediate family and society at large, often compounded by the challenge with disclosure, [15]. Researchers have noted that non-disclosure was due to fear of rejection, loss of intimacy, stigmatization, loss of economic support and threat to personal wellbeing [6,14,15,16] Were *et al*., corroborated these findings and posited that key issues involved in dealing with sero-discordant couples included helping them disclose the results of the

test to their partners and dealing with the stigma associated with formula feeding [17]. However, Adeyemo *et al*., in Lagos Nigeria reported that 87.4 % of the discordant married couples had disclosed their HIV status to their partners and felt no shame or rejection for doing so [16]. Another challenge faced by serodiscordant couples was preventing vertical transmission of HIV[15] Gitonga *et al*., in addition reported that women had a high rate of abuse. This was commoner among unemployed HIV positive females among couples of mixed HIV status in Eldoret, Kenya [18].

Tough decisions with treatment adherence, usually associated with isolation and depression, have been identified among PLHIVs generally, but literature comparing concordant and discordant couples is lacking [19]. This study focuses on both discordant and concordant couples and not just one type of couple. because the comparison has never been done before in the study setting. Also, discordant couples are at high risk of HIV transmission, with *HIV sero-discordance* accounting for 75% of all *HIV* infected couples aged between 20-49 years [20]. In order to achieve the United Nations Programme on HIV/AIDS (*UNAIDS*) strategy of three zero's- zero HIV transmission, zero AIDS related death and zero discrimination, the ill-psychosocial issues of HIV discordant couples need to be researched to inform key intervention for this high risk group [21]. The present study was undertaken to determine and compare the ill- psychosocial issues and challenges of HIV discordant and concordant couples in comprehensive health centers in Anambra, Nigeria.

2. MATERIALS AND METHODS

2.1 Study Area, Period and Design

This institution based mixed methods cross sectional comparative study was conducted between January and April 2013. The two study sites were comprehensive health centers (CHC) with 30 – 35 bed capacities. There is a linkage system between the two CHCs. Both operate twice weekly HIV clinic, the same group of Doctors work in both facilities (on a rotational basis), but each has cadres of other healthcare workers.

2.2 Study Population, Sample Size Determination and Sampling Technique

The target population consisted of 120 discordant couples and 140 concordant couples, accessing care and treatment at the first CHC, with 180 discordant couples and 180 couples in concordant relationships accessing care and treatment at the other CHC. Couples who had been in a sero-discordant/ concordant sexual relationships for at least six months; both aged at least 18 years and had disclosed sero-status to each other, met the inclusion criteria. Couples who declined consent were excluded

Minimum sample size was calculated using formula for comparison of two proportions (discordant and concordant couples) [22]. There is no documented literature comparing the ill-psychosocial issues of these groups, so 50%: 50% was used to estimate a minimum sample size of 131 couples per group. Anticipating a response rate (f=%, of 90%= (0.9)) to make up for non-response. The study sample size calculated (n/f)[23] = 131/0.9 = 145 couples per group.

Two stage sampling was used to enroll participants in this study**.** Firstly, from four comprehensive health centers in Anambra state, two were chosen using simple random sampling technique, by balloting. Secondly, at the CHC level, simple random sampling technique using a table of random numbers was employed in selecting the discordant and concordant couples respectively. The lists of these discordant and concordant couples accessing care at the clinics constituted the sampling frames and showed a total of 300 and 320 discordant and concordant couples respectively, at the two select CHCs

2.3 Data Collection and Analysis

Pre-tested, semi-structured questionnaire was used to collect data by face- to- face interviews. This questionnaire was adapted from the tool for the study on Human Sciences Research Council South Africa and the Global Network of people living with HIV/AIDS [24]. Data were then collected at the clinic, support group meetings and arranged convenient places for those whose appointment days fell outside the research time frame. To ensure data quality, training of data collection team and field monitoring of data collection was done. Data collection team met daily to submit completed forms and share

experiences. During data analysis, one of the questionnaires could not be traced, hence 289 questionnaires were analyzed. The data were reviewed, entered into the computer and cleaned by carrying out range and consistency checks. Frequencies of the variables were assessed using univariate analysis, while bivariate analysis, through chi-square and fishers' exact tests as appropriate, were used to determine associations between variables as well as compare concordant and discordant couples with alpha set at ≤ 0.05. Descriptive and analytical statistics of the data were carried out using Statistical Package for Social Sciences/ International Business Machine (SPSS/IBM) Windows version 22.0.[25] Descriptive data were presented as charts, simple frequencies and percentages in tables.

2.4 Focus Group Discussion

Four FGDs of 10 participants each were held in all, two for each health facility. One consisted of 5 (five) concordant couples and another 5 (five) discordant couples in both health facilities. The discussions were held at the health facilities on the first Saturday of the month, after the support group meetings. This was to ensure privacy of the participants. The discussion lasted for about an hour and involved a moderator, a recorder and an observer. Information from the qualitative interviews was analyzed using thematic content analysis. This involved open coding using the participant's own words and phrases, examining language used by each partner; categorizing all the information and finally generating an analytic schema. The data from the FGD recordings were transcribed, coded and themes and sub themes were then generated from them. The common and overlapping theme (Experience of being in a HIV concordant or discordant relationship, Experiences of stigma and discrimination and Receipt of Psychosocial support.) were then extracted to generate an analytic schema. Responses to the questions on conflict/ tension in relationship, fear, anxiety as well as any challenges, were used to assess the ill- psycho-social issues among HIV discordant or concordant couples.

3. RESULTS

3.1 Quantitative Study Results

Table 1 shows the socio- demographic characteristics of respondents. Table 1: states that 578 individual respondents. (289 couples). Out of the 289 (148 HIV-concordant, and 141 HIV-discordant) couples studied there were more HIV-discordant positive males 83(28.6%) than females 58(20.1%) ($p = 0.043$). The mean age (SD) of all, male, and female respondents were 37.8(9.8), 41.1(19.3), and 34.4(9.1) years respectively. All couples except one had older male partners than females, with 36-40 years as the modal male age group, for both discordant and concordant couples.

Table 2 summarizes the ill- psychological feelings due to HIV status among respondents. Figure 1 is a Clustered Bar chart showing psychological feeling by status of relationship. Most of the respondents 280(96.9%) were living with some form of ill psychological feelings, with uncertainty and anxiety being more common than anger and guilt (figure 1, table 2). About two-thirds 189(65.4%) and over one-third (35.3%) of male and female respondents respectively, were uncertain about the future, with more of the males being in discordant relationship ($\chi2 = 5.613$, $p = 0.018$). More than half of the females 165(57.1%) and one-fifth of the males 60 (21%) were anxious due to their HIV status, with no significant difference seen between concordant and discordant among females ($\chi2= 0.087$, $p = 0.768$) and males ($\chi2 = 2.434$, $p = 0.119$). Only 23 (8%) of male, and 11 (3.8%) of female partners admitted to being angry, while only five (1.7%) of male and two 0.7%) of female partners felt guilty due to their HIV status, though there was no significant difference between concordant and discordant couples (table 2).

Table 3 highlights discrimination, conflicts and experience at disclosure among HIV couples Most respondents had suffered discrimination-238(82.4%), and experienced conflict-245(84.8%) due to their HIV status, with no significant difference comparing concordant and discordant couples with respect to discrimination ($\chi2 = 1.123$, $p = 0.29$) and conflict ($\chi2 = 0.558$, $p = 0.455$). Six of the respondents had not disclosed their HIV status. This consisted of a concordant couple, two females in discordant relationship who did not disclose due to fear of rejection, and two other females that did not disclose because they felt it was not necessary. There were no statistically significant differences in the experiences of males ($\chi2 = 5.22$, $p = 0.156$) and female ($\chi2 = 3.86$, $p = 0.277$) partners on disclosure of their HIV statuses among concordant and discordant relationships.

Table 4 Challenges faced by HIV discordant and concordant couples. Figure 2 is a bar chart showing challenges faced by HIV concordant and discordant couples. One hundred and thirty-three (46.0%) respondents experienced discrimination from the family with more, 86(64.7%) of the discordant couples being affected compared with 47(35.3%) of the concordant couples. More discordant couples 43(58.1%) faced discrimination at the workplace compared with concordant couples 31(41.9%).

Table 1. Sociodemographic characteristics of respondents by relationship status (N=578)

Characteristics		Concordant Couples		Discordant Couples		
		Male concordant n (%)	Female concordant n (%)	Male discordant n (%)	Female discordant n (%)	Group Total n (100%)
Age Groups	18-24	0 (0.0)	18 (85.7)	0 (0.0)	3 (14.3)	21 (100)
	25-29	21 (13.4)	59 (37.6)	17 (10.8)	60 (38.2)	157 (100)
	30-34	36 (35.6)	28 (27.7)	20 (19.9)	17 (16.8)	101 (100)
	35-39	36 (29.8)	14 (11.6)	43 (35.5)	28 (23.1)	121 (100)
	40-44	18 (34.6)	10 (19.2)	16 (30.8)	8 (15.4)	52 (100)
	45-49	18 (25.4)	15 (21.1)	23 (32.4)	15 (21.1)	71 (100)
	50-54	12 (48.0)	2 (8.0)	8 (32)	3 (12)	25 (100)
	≥55	7 (48.3)	2 (10.5)	13 (47.4)	7 (21.0)	30 (100)
Educational Level	Nil	1 (20.0)	0 (0.0)	3 (60.0)	1 (20.0)	5 (100)
	Primary	50 (32.0)	36 (23.1)	34 (21.8)	36 (23.1)	156 (100)
	Secondary	58 (21.4)	83 (30.6)	56 (20.7)	74 (27.3)	271 (100)
	Tertiary	39 (26.7)	29 (19.9)	48 (32.9)	30 (20.5)	146 (100)
Occupation	Farmer	12 (38.7)	4 (12.9)	10 (32.3)	5 (16.1)	31 (100)
	Civil Serv.	97 (28.2)	81 (23.6)	82 (23.8)	84 (24.4)	344 (100)
	Trader	28 (24.5)	30 (26.3)	32 (28.1)	24 (21.1)	114 (100)
	Others	11 (15.7)	18 (25.7)	16 (22.9)	25 (35.7)	70 (100)
	Unemployed	0 (0.0)	14 (77.8)	1(5.5)	3 (16.7)	18 (100)
Marriage Type	Monogamy	132(50.3)		130 (49.6)		262 (100)
	Polygamy	15 (55.6)		12 (44.4)		27 (100)
Religion	Pentecostal	34 (47.8)		37 (52.2)		71(100)
	Anglican	39 (49.4)		40 (50.6)		79 (100)
	Rom. Cath.	56 (53.8)		48 (46.2)		104 (100)
	Jeh. Wit	3 (60.0)		2 (40.0)		5 (100)
	Sabbath	9 (52.9)		8 (47.1)		17 (100)
	Moslem	0 (0.0)		1 (100)		1 (100)
	Trad.	7 (63.6)		4 (36.4)		11 (100)

Table 2. Psychological feelings due to HIV status among respondent couples

		Concordant couples n (%)	Discordant couples n (%)	Chi-Square statistic	P-value
Guilt	Yes	2 (0.7)	3 (1.0)	Fishers	0.679
	No	144 (50.3)	137 (47.9)		
Anger	Yes	15 (5.2)	8 (2.8)	1.961	0.161
	No	132 (46.0)	132 (46.0)		
Uncertainty	Yes	87 (30.4)	102 (35.7)	5.613	0.018*
	No	59 (20.6)	38 (13.3)		
Anxiety /fear	Yes	36 (12.6)	24 (8.4)	2.434	0.119
	No	110 (38.5)	116 (40.6)		
no ill feelings	Yes	5 (1.7)	2 (0.7)	Fishers	

		Concordant couples n (%)	Discordant couples n (%)	Chi-Square statistic	P-value
	No	141 (49.3)	138 (48.3)		
Guilt	Yes	0 (0.0)	2 (0.7)	Fishers	
	No	146 (51.0)	138 (48.3)		
Anger	Yes	4 (1.4)	7 (2.4)	0.987	
	No	142 (49.7)	138 (46.5)		
Uncertainty	Yes	58 (20.3)	44 (15.4)	2.144	
	No	88 (30.8)	96 (33.6)		
Anxiety/fear	Yes	83 (29.0)	82 (28.7)	0.087	
	No	63 (22.0)	58 (20.3)		
no ill feelings	Yes	1 (0.3)	5 (1.7)	2.899	
	No	145 (50.7)	135 (47.2)		

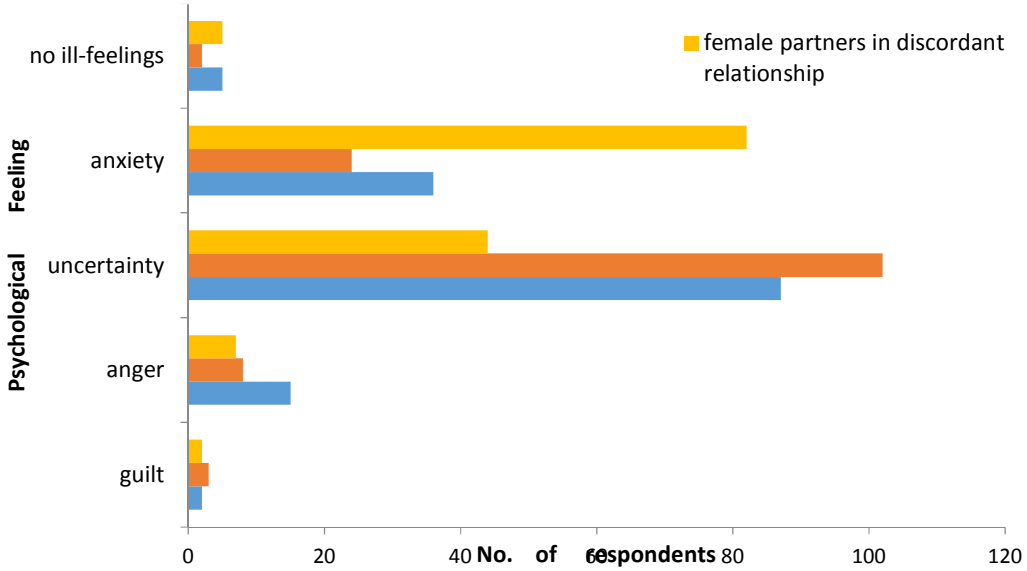

Fig. 1. Clustered Bar chart showing psychological feeling by status of relationship

Table 3. Discrimination, conflicts and experience at disclosing among HIV couples

		Concordant couples n (%)	Discordant couples n (%)	Chi-square statistic	degrees of freedom	p – value
Ever been discriminated due to HIV status	Yes	118 (42.3)	120 (43.0)	1.123	1	0.29
	No	24 (8.6)	17 (6.1)			
Experienced conflict due to HIV status	Yes	122 (42.7)	123 (43.0)	0.558	1	0.455
	No	23 (8.0)	18 (6.3)			
Male partner experience at disclosing	Acceptance	51 (22.2)	23 (10.0)	5.22	3	0.156
	Rejection	34 (14.8)	15 (6.5)			
	express shock	49 (21.3)	41 (17.8)			
	Others	39 (13.6)	36 (12.5)			
Female partner experience at disclosing	Acceptance	34 (16.9)	20 (10.0)	3.86	3	0.277
	Rejection	33 (16.4)	14 (7.0)			
	express shock	64 (31.80	18 (9.0)			
	Others	12 (6.0)	6 (3.0)			

Table 4. Challenges faced by HIV discordant and concordant couples (N = 289)

Variable	Discordant n (%)	Concordant n (%)	Total n (100)	Chi-square	p-value
Family-based discrimination					
yes	86(64.7)	47(35.3)	133(100)	24.8	0.00
no	55(35.3)	101(64.7)	156(100)		
Workplace discrimination					
yes	43(58.1)	31(41.9)	74(100)	3.3	0.07
no	98(45.8)	116(54.2)	214(100)		
Discrimination at religious places					
yes	22(57.9)	16(42.1)	38(100)	1.5	0.23
no	119(47.4)	132(52.6)	251(100)		
Emotional problems related to HIV					
yes	121(58.5)	86(41.5)	207(100)	27.3	0.00
no	20(24.4)	62(75.6)	82(100)		
difficulty with adherence to antiretroviral drugs					
yes	48(61.5)	30(38.5)	78(100)	7.0	0.01
no	93(44.1)	118(55.9)	211(100)		
problems with sexuality in marriage					
yes	132(58.4)	94(41.6)	226(100)	38.4	0.00
no	9(14.3)	54(85.7)	63(100)		

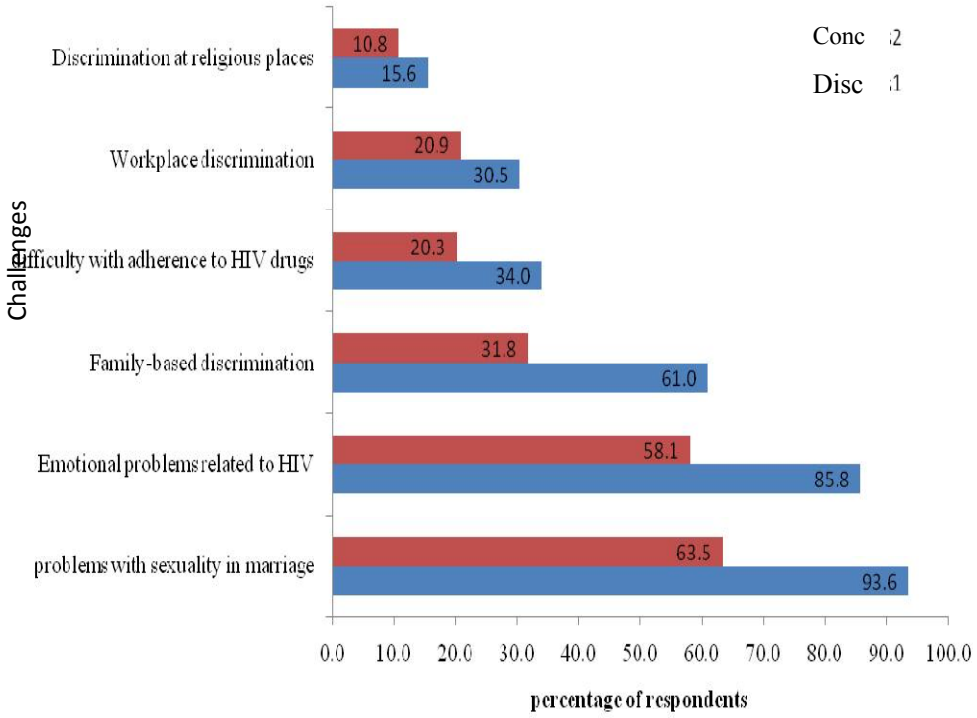

Fig. 2. Challenges faced by HIV discordant and concordant couples

3.2 Focus Group Discussion Results

3.2.1 Experiences of being in a HIV concordant or discordant relationship

The couples acknowledged that being in a relationship that was HIV affected, was not an easy one. They all tried to come to terms with the negative reactions of their partners especially when under stress. This is depicted below. "*It has not been easy for us, we still haven't come to terms with the reality of the burden of this condition"* (Couple 1, Concordant, CHC2). "*My wife has been very supportive of me since I came down with this ailment, 5 years ago"* (Couple 1, Discordant, CHC1). *"My husband no longer has any intimate relationship with me. Infact he hardly eats at home anymore*." (Couple1 Discordant Woman CHC2). "We have resigned ourselves to take whatever would be" (Couple 4 Concordant CHC1). "*It has not been easy, but we are coming to terms with the reality of the situation*" (Couple 5 Discordant CHC1).

3.2.2 Experiences of stigma and discrimination

There is still some stigma and discrimination being experienced by these couples despite the support being received from caregivers and other people involved in their day- to- day care. *"I feel some people in my neighborhood know about my ailment because of the kind of looks they give me any time I come out. I really feel bad about it"* (Couple 2 Woman, Concordant, Neni) *"We have not told that I have the virus, we do not want to be castigated. We see what those who for some reason have allowed the information to leak out go through. We do not want to go through that for any reason"* (Couple 3, Discordant Neni).*"It has not been easy being in a discordant relationship. Few of my wife's relatives that know always treat me like a leper"* (Couple 2 Discordant man Ukpo). *"I have received a lot of support from my husband and i am indeed grateful"* (couple 4 discordant woman Ukpo).

3.2.3 Receipt of psychosocial support

Generally, couples agree to having received support, psychological and otherwise from people around. This ranges from family members to non- governmental organizations. The couples on the whole are thankful for this level of support. "*We are really grateful for these organizations that provide us with drugs and the support group meetings that we have here. They have helped to ease the suffering we experienced in the early days of this ailment."* (Couple 4 Concordant, Ukpo.). "*We have not told that we have the virus, we do not want to be castigated. We see what those who for some reason have allowed the information to leak out go through. We do not want to go through that for any reason"* (Couple 3, Concordant Neni). *"My mother has been very supportive of me, always encouraging me to take my medications. I wonder what I would have done without her"* (Couple 5 Man, Concordant Neni)..*"We are a bit uncertain about the future. We are trying to take it a day at a time"* (Couple 2 concordant Ukpo).*" I am pleased at the level of support we are getting at this centre i only wish more people would be have enough to admit their status and receive prompt help"* (Couple 3 Concordant Ukpo).. "*We have received a lot of support from the caregivers at this centre and we are really grateful*" (couple 5 concordant Ukpo).

4. DISCUSSION

This mixed method comparative study assessed the ill- psychosocial issues and challenges facing a cross-section of HIV discordant and concordant couples at the comprehensive health centers in Anambra state, Nigeria. A high response rate (99.2 %) was obtained from this study and is consistent with the rates reported in studies by Ngilangwa *et al*., in Tanzania,[20] Nozaki *et al.,* in Zambia [26] and Kaiser *et al.,* in Kenya [27].

Uncertainty and anxiety/ fear were the commonest forms of ill psychological feelings. About two-thirds of male and one-third of female respondents were uncertain about the future, with more of the males being in discordant relationship ($p = 0.018$). This finding agrees with the reports of several reviews that uncertainty concerning their future health and wellbeing is a key psychosocial issue among this group [9,10].

The findings of the index study showed that due to HIV status of respondents, at least eight in every ten of them had either suffered discrimination or experienced conflict. They experienced discrimination from several places, including workplace, health facility and at family level. This agrees with the findings by Adeyemo *et al*., in Lagos Nigeria [16] and Alemu *et al*., in Ghana [28] which showed stigma and discrimination as problems facing those in HIV positive relationships. However, these authors reported some improvements from what obtained in the early days of the epidemic.

Generally, this study revealed that concordant and discordant couples face psychological issues and challenges which should not be ignored. The discordant couples, however, had more of these challenges (discrimination, issues with adherence, emotional problems etc.) than the concordant couples. This is at variance with what would normally be expected, as discordant couples would have been expected to be more abreast with these psychological issues in order to prevent infection of the negative partner. This finding may however, be attributed to the fact that the concordant couples may have a more united front in approaching the issues associated with HIV/AIDS. Also, while the negative partner may sometimes display a nonchalant attitude which may negate efforts in tackling the issues associated with HIV/AIDS. This is likely due to the fact that the negative partner no longer has (or may no longer be interested in having) sexual relationship with his/her infected partner.

5. LIMITATIONS

Discordant couples were recruited through clinics that provide services to HIV-positive individuals. Thus, participating couples had some degree of access to healthcare or social services and are likely to have had greater knowledge and greater service use than a typical discordant couple in the community which might have influenced the answers given to certain questions. The study analysis did not include multivariate analysis to control for any potential confounders as well as analysis with odd ratio and adjusted odds ratio including their 95% confidence intervals, for the variables. Further research to understand outcome variations are warranted.

6. CONCLUSIONS

This study has shown that ill- psychosocial issues such as uncertainty, anxiety/fear, guilt and anger were experienced by both discordant and concordant couples. The discordant couples faced more of these challenges (discrimination, issues with adherence, emotional problems, etc.) than the concordant couples. These challenges were experienced at the workplace, health facility and family level. Based on these findings and the perspectives of the couples interviewed, we recommended thus: Both discordant and concordant couples should be offered sustained and comprehensive couple targeted psychological support through effective counselling and awareness creation. Also, stigma and discrimination should be addressed at family level, where family members are encouraged to be supportive; at the health facility, through training and retraining of the health workers on the need to be non-judgmental and culturally sensitive. Government is to formulate and ensure the implementation of policies on stigma and discrimination against PLWHV at the family, workplace and health facility.

CONSENT

A written informed consent was obtained from each participant for the conduct and publication of this research study and assurance of confidentiality given.

ETHICAL CONSIDERATION

Study participants were free to refuse or withdraw from the study at any time without penalty. The study's objective was explained to each participant prior to interview. All authors hereby declare that the study has been examined and approved by the University Teaching Hospital Ethics Committee and has therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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