

Original Article

Modifying Sexual Behaviour of Patients Attending Human Immunodeficiency Virus Treatment Centres in Lagos

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ABSTRACT

Aims and Objectives: This study was carried out among patients attending human immunodeficiency virus (HIV) treatment centres in Lagos to assess their sexual behaviour, conduct a health education intervention on safe sexual behaviour among the patients in the study group and re-assessing the sexual behaviour in both control and study groups.

Subjects and Methods: A multi-stage sampling method was used to recruit 253 control and 256 intervention patients. The study sites selected were HIV treatment centres in Lagos State University Teaching Hospital (control), and Ifako-Ijaiye and Isolo General Hospitals (intervention). A pre-tested interviewer-administered questionnaire was used for data collection. The study site intervention consisted of health education seminars. Post-intervention data were collected after 3 and 6 months. Total study duration was about 10 months.

Results: At baseline, there was no statistically significant difference in the sexual behaviour of respondents in both groups. Post-intervention, the notable effects of this intervention on the sexual behaviour of the study group were a 37.7% rise in condom use at last sexual exposure, a 74.3% increase in consistent condom use in the last 3 months, a 74.3% rise in consistent condom use with regular partners and a 39.0% rise in consistent condom use with casual partners.

Conclusion: The modification of sexual behaviour of respondents achieved in this study has shown that dedicated interventions to increase the practice of safer sex can be effective. More of such interventions are required to stem the spread of HIV in Nigeria.

KEY WORDS: Behaviour change, health education, safe sexual behaviour

INTRODUCTION

As at 2014, there were about 36.9 (34.3–41.4) million people living with the human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) (PLWHA) in the world.^[1] Nigeria has the second largest number of PLWHA in Africa and the world, with a national prevalence of 4.1%.^[2,3] This rise in the number of PLWHA is because transmission rates of HIV are still quite high, and those already infected with HIV now have improved access to anti-retroviral therapy (ART), which is resulting in the prolongation of their lives.^[4,5]

Among HIV-infected individuals, an increase in unsafe sex practices has been observed in industrialised countries, and the prevalence of condom use has been found to be low among PLWHA.^[6,7] The majority of the PLWHA in Nigeria are sexually active, with rising rates of sexual initiation.^[8–10] Studies conducted among PLWHA in Nigeria have also shown high rates of sexual activity and low contraceptive use.^[7,8,11,12]

The main mode of HIV transmission in Nigeria is by unprotected heterosexual intercourse.^[13] To bring about an

increase in safe sexual practices, behavioural change has been found to be the reason for the prevention successes to date, and strategies to modify risk behaviour need to remain a priority for HIV prevention.^[14,15] Studies in several African countries and Brazil have reported decreases in HIV transmission related to changes in sexual behaviour.^[14] There is, therefore, a need for prevention and interventions for HIV-positive people,^[16] to prevent further spread of HIV/AIDS, which should include the promotion of safe sexual behaviour.^[17]

This study was, therefore, embarked upon with the objectives of assessing the sexual behaviour of PLWHA attending treatment centres in Lagos, conducting a health education intervention on safe sexual behaviour among the patients in the study group and re-assessing the sexual behaviour in both control and study groups.

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SUBJECTS AND METHODS

Lagos State is located in South-Western Nigeria and has an estimated population of 15 million people.^[18] The study sites were the Lagos State University Teaching Hospital (LASUTH), Ikeja, Ifako-Ijaiye General Hospital, Ifako (IGH) and Isolo General Hospital, Isolo (ISGH). LASUTH is one of the two teaching hospitals in Lagos State, while IGH and ISGH are general hospitals in Ifako-Ijaiye and Oshodi-Isolo Local Government Areas of Lagos State, respectively. The Haematology Clinic (LASUTH) runs from 8 a.m. to 4 p.m. on Monday to Thursday, every week. An average of about 100 patients are attended to daily (about 400/week).

The Lag Clinic is where the HIV patients are attended to at IGH and is smaller than the Haematology Clinic in LASUTH. The Lag Clinic runs from 8 a.m. to 4 p.m., every Wednesday. An average of about 30 patients are attended to weekly. The heart to heart (HTH) Clinic in ISGH runs between 8 a.m. and 4 p.m., on Wednesdays and Thursdays, and an average of about 100 patients are attended to on a weekly basis at the clinic.

The study population was selected from among the HIV-positive patients attending the Haematology Clinic in LASUTH, the Lag Clinic in IGH and the HTH Clinic in ISGH. The study was prospective with a quasi-experimental study design. The required sample size was calculated using the formula for comparing proportions.^[19] The minimum sample size calculated was 210 in each group and 20% (42) of this was added to make up for attrition. A final sample size of 504 (252 study group and 252 control group) was arrived at.

A multi-stage sampling method was used for subject selection in this study.

STAGE ONE

The three study sites were selected by simple random sampling by balloting from the 18 centres offering comprehensive HIV treatment services among those listed in the Lagos State AIDS Control Agency directory of HIV and AIDS referral services in Lagos State.^[20]

STAGE TWO

The study group was recruited from the Lag Clinic in IGH and the HTH Clinic in ISGH. This was carried out using a systematic random sampling method. The total estimated number of patients from both facilities in a month were 520 (400 from HTH and 120 from the Lag Clinic), with a study group sample size of 252. This gave a sampling interval of two (520/252). An integer between 1 and 10 was selected by balloting to get the first participant among the first 10 patients to visit the clinics at the beginning of the study. Then, every second consenting patient who met the inclusion criteria was recruited into the study group. A total of 256 patients were recruited into the study group.

The control group participants were recruited from the Haematology Clinic in LASUTH also using a systematic random sampling method. An integer between 1 and 10 was selected by balloting to get the first participant among the first 10 patients to visit the clinic at the beginning of the study.

The population of patients was estimated to be 1600 in a month (400 a week for 4 weeks), with a control group sample size of 252 (1600/252). This gave rise to a sampling interval of six. After the selection of the first participant as already stated, subsequently, every sixth consenting patient who visited the clinic and met the inclusion criteria was recruited for the study until the control group sample size was attained. A total of 253 patients were recruited into the control group.

Respondents had to be HIV-positive and at least 18 years old to be included in the study. Critically or terminally ill patients were excluded from the study.

A pre-tested interviewer-administered questionnaire was used for data collection in the study. The questionnaire was pre-tested for content validity and reliability among HIV patients attending the HIV treatment centre at the Nigerian Navy Reference Hospital, Ojo, reasonably distant from the study sites and adjusted accordingly. The questionnaire and teaching manual were adapted from those used in a preventive intervention study for youths living with HIV, conducted by Rotheram-Borus *et al.* and modified accordingly.^[21] The questionnaire comprised of demographic information, social and drug history, knowledge about HIV/AIDS, and knowledge about contraception and contraceptive use. The interviewers were made up of 14 research assistants (nine of whom were also PLWHA), all of whom were trained for 2 days prior to collection of data.

The study was divided into phases to better appreciate the time frames involved.

PHASE 1 (PRE-INTERVENTION)

The questionnaires were administered at all the sites on clinic days from December 2011 to January 2012.

PHASE 2 (INTERVENTION)

The intervention took place at the two study centres from 23rd January to 24th February 2012 making use of clinic days and support group meetings and so non-participants were also able to benefit from the intervention. During the health education seminars, the researcher assisted by a health educator, two PLWHA (research assistants) and a family planning nurse provided health education (based on the social learning model which has the following major concepts—expectations, observational learning, behavioural capability, self-efficacy, reciprocal determinism and reinforcement).^[21,22] The health education was structured into six modules in the teaching manual with the following titles: Knowledge about HIV/AIDS and transmission, partner reduction, how to use condoms, drug adherence, positive living and modern contraception. The sessions were interactive and snacks were served to all the participants. Each participant was scheduled to have three sessions with at least two modules at each session. A total of 186 (73.8%) participants had some measure of exposure to the study group intervention by attending at least one session. The intervention for the control group at LASUTH took place in February 2012. The participants received health education on malaria prevention. The choice of malaria was hinged on the fact that malaria is endemic in Lagos environs, and prevention of malaria was not expected to have a bearing on the sexual behaviour of respondents.

PHASE 3 (CONTINUITY)

Copies of the Information Education and Communication (IEC) materials distributed during the health education seminars were given to the study group participants during clinic visits and at support group meetings. This was to serve as reinforcement for behavioural change.

PHASE 4 (POST-INTERVENTION ASSESSMENT)

3 and 6 months after this intervention, starting on the 25th May to June and 24th August to September 2012, the questionnaires were re-administered to the participants at all the sites. At ISGH and IGH (study sites), each participant also received a copy of the IEC material to serve as a reminder for behavioural change for the respondents. Telephone calls were made to participants who missed their scheduled visits, fresh appointments scheduled and text message reminders sent. Twenty home and office visits were carried out by research assistants to reduce the loss of follow-up as much as possible. One participant from ISGH died (road traffic accident) and five participants from LASUTH also died (one postpartum death, and others as a result of complications from illnesses). The questionnaires were administered to a total of 252 and 250 participants from the study sites and 212 and 210 from the control group at 3 and 6 months, respectively.

ETHICAL CONSIDERATION (EXCHANGE OF INTERVENTIONS)

After data collection, the intervention on HIV/AIDS and contraceptive use was carried out at LASUTH from 21st–25th September 2012, and health education on malaria prevention was delivered to the participants at ISGH and IGH (study group) on 27th–28th September and 4th–5th October 2012.

Data analysis was performed using Statistical Package for Social Sciences version 19 (IBM Corp. Released 2010. IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp). Chi-square and Fisher's exact tests were performed using a 95% confidence interval, and the level of significance set at 0.05. Outcome measures of sexual behaviour were compared between the study and control groups and also pre- and post-intervention in the two groups.

Ethical clearance was obtained from the LASUTH Health Research and Ethics Committee, and permission was obtained from the Medical Directors of the LASUTH, ISGH and IGH. The participants in both the study and control groups received the routine services available at the clinics during the study, and those in the control group also received the intervention programme at the end of the study.

Informed written consent was obtained from each participant in the study. The subjects were assured of strict confidentiality and made to understand that participation is voluntary, and refusal to participate would not attract sanctions against them. Subjects who chose to participate in the study were free to withdraw at any time, and withdrawal from the study was in no way detrimental to the subjects.

The information collected was subject to recall bias and courtesy (desirability) bias as they were self-reports, which are not readily verifiable, as sexual behaviour typically does not take place in public. Contamination resulting from exposure

to standard care in clinics and media campaigns promoting safer sexual behaviour during the study period may have occurred. A Hawthorne effect may also have occurred as respondents were aware they were being studied, but this was minimised by constantly encouraging the respondents to give an honest report of activities as there were no right or wrong answers. Observer bias was also a possibility as the data collectors and analyst were not blinded being actively involved in the intervention; however, this was reduced by constantly reinforcing that whatever respondents reported must be documented as stated.

RESULTS

Pre-intervention, 253 respondents in the control group and 256 in the study group were studied. At the first follow-up assessment, 212 respondents in the control group and 252 in the study group were studied, while the 2nd follow-up assessment was conducted among 210 control group respondents and 250 from the study group. Respondents who were lost to follow-up were analysed and not found to be significantly different from those who were retained with regards to their socio-demographic characteristics and sexual behaviour.

The study group had a slightly higher number of females (207, 80.9%) than the control group (186, 73.5%). The age group of 30–39 years had the highest proportion in both the study group (42.6%) and the control group (38.3%). The mean age of respondents in the control group was 37.4 ± 9.7 years, while that of the study group was 37.5 ± 8.9 years. The modal age of the control group was 32, while that of the study group was 30. There was a significantly larger number of respondents who were single in the control group than in the study group ($P = 0.003$). These can be seen in Table 1.

Table 2 shows that there was no statistically significant difference between the sexual behaviour reported by the control and study groups at baseline.

Table 1: Sociodemographic characteristics of respondents

Variable	Frequency (%)		Test of significance	P
	Control (n=253)	Study (n=256)		
Gender				
Male	67 (26.5)	49 (19.1)	$\chi^2=3.898$	0.050
Female	186 (73.5)	207 (80.9)		
Age group (years)				
<20	3 (1.2)	0 (0.0)	Fishers exact=4.515	0.487
20-29	54 (21.3)	50 (19.5)		
30-39	97 (38.3)	109 (42.6)		
40-49	63 (24.9)	65 (25.4)		
50-59	32 (12.6)	26 (10.2)		
60 and above	4 (1.6)	6 (2.3)		
Marital status				
Single	57 (22.5)	28 (10.9)	$\chi^2=14.852$	0.002
Married	162 (64.0)	174 (68.0)		
Divorced	15 (5.9)	24 (9.4)		
Widowed	19 (7.5)	30 (11.7)		

From Table 3, it can be seen that the use of a condom in the last sexual exposure increased significantly from 67.7% pre-intervention to 87.9% 3 months post-intervention and 93.2% at 6 months post-intervention ($P < 0.000$). Though in both groups, there was significant increase in the number of participants who reported using a condom for sexual intercourse always in the last 3 months, the increase was larger in the study group (58.9%) than the control group (48.3%). Respondents in the control group reported an increasing number of regular partners, which was statistically significant ($P = 0.026$), while there was a slight reduction in the study group. Statistically significant increases were seen in the number of those in the study group who always used a condom with both regular (63 [35.8%]–111 [62.4%]) and casual (13 [43.3%]–56 [60.2%]) sexual partners, although there was also a rise in the number of those who reported having casual partners. Worthy of note was the fact that among the control group, there was a statistically significant

reduction in the proportion that consistently used a condom with a casual partner from 44.1% pre-intervention to 34.5% 6 months post-intervention ($P < 0.001$). There was, however, a rise in those who always used condoms with regular partners from 40.5% pre-intervention to 49.4% 6 months post-intervention ($P = 0.005$).

DISCUSSION

The largest proportion of the participants in both the control group (38.3%) and study group (42.6%) belonged to the age group of 30–39 years. This was similar to the results obtained in Ibadan (47.7%),^[11] Lagos (41.4%)^[23] and Northern Nigeria (37.7%).^[10] In Kabale, Uganda, a cross-sectional study; however, reported the largest age group being from the 25–29 years age group, although the 30–39 years age group made up about 33.9% of the respondents.^[24] All these indicate that people in the young and active age groups are the ones most affected by HIV/AIDS in Africa. This will

Table 2: Sexual behaviour of respondents pre-intervention

Sexual behaviour	Frequency (%)		χ^2	P
	Control	Study		
Had sexual intercourse in the last 3 months	n=253 202 (79.8)	n=256 201 (78.5)	0.136	0.713
Type of sexual intercourse amongst the exposed*	n=202	n=201		
Vaginal sex	194 (96.0)	185 (92.0)	2.878	0.090
Anal sex	5 (2.5)	5 (2.5)	0.000	0.994
Oral sex	16 (7.9)	8 (4.0)	2.793	0.095
Condom used in the last 3 months	n=202	n=201	1.876	0.391
Never	50 (24.8)	61 (30.3)		
Sometimes	83 (41.1)	72 (35.8)		
Always	69 (34.2)	68 (33.8)		
Condom used since HIV diagnosis	n=253	n=256	0.884	0.643
Never	97 (38.3)	108 (42.2)		
Sometimes	84 (33.2)	77 (30.1)		
Always	72 (28.5)	71 (27.7)		
Condom used in last sexual exposure	n=253	n=256	0.902	0.342
Never	145 (57.3)	136 (53.1)		
Condom used in last sexual exposure amongst respondents who were sexually active in the last 3 months	n=202	n=201	0.810	0.368
Never	145 (71.8)	138 (67.7)		
Type of sexual partner**	n=202	n=201		
Regular	173 (85.6)	176 (87.6)	0.320	0.572
Casual	34 (16.8)	30 (14.9)	0.274	0.601
Condom used with regular partner	n=173	n=176	1.051	0.591
Never	30 (17.3)	35 (19.9)		
Sometimes	73 (42.2)	78 (44.3)		
Always	70 (40.5)	63 (35.8)		
Condom used with casual partner	n=34	n=30	5.715	0.057
Never	12 (35.3)	4 (13.3)		
Sometimes	7 (20.6)	13 (43.3)		
Always	15 (44.1)	13 (43.3)		
Number of sexual partners	n=202	n=201		
1	170 (84.2)	176 (87.6)	2.130	0.345
2 or more	12 (5.9)	6 (2.9)		
No response	20 (9.9)	19 (9.5)		

*Multiple responses allowed, **Both responses allowed. HIV: Human immunodeficiency virus

Table 3: Changes in sexual behaviour from pre- to post-intervention

Sexual behaviour	Group	Frequency (%)			P
		Baseline	1 st follow-up	2 nd follow-up	
		<i>n</i> ^c =202, <i>n</i> ^s =201	<i>n</i> ^c =176, <i>n</i> ^s =206	<i>n</i> ^c =180, <i>n</i> ^s =207	
Vaginal sex	Control	194 (96.0)	151 (85.8)	147 (81.7)	<0.001
	Study	185 (92.0)	157 (76.2)	153 (73.9)	<0.001
Anal sex	Control	5 (2.5)	6 (3.4)	3 (1.7)	0.590
	Study	5 (2.5)	20 (9.7)	2 (1.0)	<0.001
Oral sex	Control	16 (7.9)	27 (15.3)	9 (5.0)	0.002
	Study	8 (4.0)	15 (7.3)	39 (18.8)	<0.001
Condom in last sexual exposure	Control	145 (71.8)	124 (70.5)	135 (75.0)	0.612
	Study	138 (67.7)	181 (87.9)	193 (93.2)	<0.001
Consistent condom use	Control	69 (34.2)	89 (50.6)	87 (48.3)	0.002
	Study	68 (33.8)	98 (47.6)	122 (58.9)	<0.001
Have a regular sexual partner	Control	173 (85.6)	164 (93.2)	166 (92.2)	0.026
	Study	176 (87.6)	156 (75.7)	178 (86.0)	0.002
Consistent condom use with regular partner*	Control	70 (40.5)	92 (56.1)	82 (49.4)	0.005
	Study	63 (35.8)	77 (49.4)	111 (62.4)	<0.001
Have a casual partner	Control	34 (16.8)	51 (29.0)	55 (30.6)	0.003
	Study	30 (14.9)	80 (38.8)	93 (44.9)	<0.001
Consistent condom use with casual partner**	Control	15 (44.1)	10 (19.6)	19 (34.5)	<0.001
	Study	13 (43.3)	28 (35.0)	56 (60.2)	<0.001

*Only amongst respondents who have regular partners, **Only amongst respondents who have casual partners, *n*^c, *n*^s refer to number of respondents in control and study groups

adversely affect the economic and social life of families and the nation as this group makes up the active workforce of any country.

Prior to the intervention, there was no statistically significant difference in sexual behaviour between the control and study groups. Over three-quarters, 79.8% and 78.5% of the control and study group respondents admitted to having had sexual intercourse in the previous 3 months, which is similar to the findings from a study conducted among PLWHA sampled in Maiduguri (75.6%),^[9] Lagos (70.3%),^[23] 63% after some period of treatment with ART in Ibadan,^[25] 63.6% in South-Western Nigeria^[12] and 59.2% in Uganda.^[24] In the USA, an intervention study reported that at baseline assessment, 11% and 15% of the intervention and control groups, respectively, had engaged in anal sex, which is higher than the findings from the present study, probably on account of the different cultures in both areas.^[26] These findings all point to the fact that majority of PLWHA are sexually active.

A condom was used in the last sexual exposure in this study by 57.3% of the control group and 53.1% of the study group among all respondents. However, among sexually active respondents, 71.8% of the control and 67.7% of the study group used a condom in the last sexual exposure. These are higher than the figures stated in a study conducted in South Africa in which 39% of males and 33% of females used a condom in their last sexual exposure.^[27] In Ethiopia, a study among PLWHA revealed that 76% of them made use of a condom in their last sexual exposure.^[28] This is a little higher than the findings from the present study. These differences may be on account of the fact that the respondents in the study conducted in South Africa were assessed during their

first visit to the clinic and so may not have been exposed to health education on condom use unlike the respondents in the present study and the one conducted in Ethiopia who had received some exposure to clinical care.

In the present study, among respondents who had been sexually active in the previous 3 months, 85.6% of the control group and 87.6% of the study group had regular sexual partners. Respondents in a study conducted in South Africa, who were residents in an urban area, had a slightly lower proportion (75.1%) of them having regular sexual partners, whereas those who resided in the rural areas had a much smaller proportion (46.0%) having regular partners.^[27] This is probably because the study in South Africa reported the proportion among all respondents unlike this study where it is a proportion of only sexually active respondents. Among the respondents who had regular partners in this study, consistent condom use with these partners was practised by 40.5% of the control group and 35.8% of the study group. This is much less than the 78.4% of respondents residing in urban South Africa and 48.3% in rural areas who reported the consistent use of a condom with regular sexual partners.^[27] This shows that although sexual activity among respondents in this study which was conducted in urban areas was a little more than that in urban South Africa, it was without adequate protection of these acts with the consistent use of a condom showing the importance of providing an intervention to increase safe sexual behaviour among respondents. The lower rate of condom use in this study may be because of cultural restrictions whereby condom use with a regular partner is associated with infidelity.

Sexual activity varied among the study group in the present study, but there was a greater increase in protected sexual

acts (increased condom use) similar to findings in a study conducted in South Africa where sexual activity increased over the course of the study, but the number of unprotected vaginal and anal sex events decreased.^[29] The findings are also similar to another study conducted in Connecticut, USA, where intervention group participants tended to reduce the number of partners with whom they had unprotected vaginal or anal sex, whereas control arm participants tended to increase the number of partners with whom they had unprotected vaginal or anal sex.^[26] This observation that PLWHA receiving standard clinical care as the control settings significantly increased their unsafe sexual behaviour is consistent with the findings of a rise in the lack of consistent condom use and calls for attention.^[26]

The notable effects of this intervention on the sexual behaviour of the study group were a 37.7% rise in condom use at last sexual exposure, a 74.3% increase in consistent condom use in the last 3 months and with regular sexual partners and a 39.0% rise in consistent condom use with casual partners. A similar intervention study reported an 82% reduction in unprotected sexual acts among the participants in the group that received the intervention.^[21] These changes may not have been as much as this reported study because behavioural change may take some time to establish and the respondents in the present study were only followed up for 6 months.

The public health implication of the results obtained in this study is that interventions to modify sexual behaviour among PLWHA actually make an observable difference when applied and are vital if zero transmission of HIV is to be achieved. More of such interventions are required in order to stem the spread of HIV in Nigeria and beyond.

In addition, notable is the fact that some measures of safe sexual behaviour such as the consistent use of condoms with sexual partners are liable to worsen as they did in this study among the control group if nothing is done to change the situation. It is recommended that managers of HIV treatment centres should periodically assess the sexual behaviour of their patients (more research) and institute dedicated interventions such as that documented in this study to improve sexual behaviour. There should also be the provision of health education on safe sexual behaviour regularly for PLWHA, particularly during support group meetings. PLWHA, who require assistance, should receive educational support and be enrolled in skill acquisition schemes to improve their education and economic status. There is also a need to provide information to the general populace (including PLWHA) about safe sexual behaviour in the form of public enlightenment adverts and campaigns to improve their practice of safe sexual behaviour.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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