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ORIGINAL ARTICLE

Implanon sub-dermal implant: an emerging method of contraception in Ilorin, Nigeria

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Implanon, a single rod sub-dermal implant is a relatively new contraceptive which offers long term reversible contraception for women. This study seeks to determine the safety, efficacy and acceptor characteristics of Implanon at the family planning clinic of University of Ilorin Teaching Hospital (UITH), Ilorin, Nigeria. This study involves a retrospective review of 88 clients who used Implanon from January 2007 to December 2011 at the family planning clinic of the UITH, Ilorin. Of the 2,456 clients who had contraception during the period, 88 had Implanon giving a 3.6% uptake. The mean age of Implanon users in the study was 33.4 years, no teenager used the method and 72 (81.8%) knew about the method from clinic staff. Women with two living children constituted 29 (33%) of the total users, 78(88.6%) users had at least secondary education, all except one client were married and religion did not influence its use. Twenty two (25%) users had side effects, the commonest being menstrual irregularity in 13(59%) of the participants. Discontinuation rate was 26.1% and the commonest reason for discontinuation was the desire to get pregnant 8(35%). The Pearl Index for Implanon in the study was 0. Implanon is an effective long term hormonal contraceptive appropriate in a wide range of women with tolerable side effect profile but is currently underutilised. Wider publicity, education and access are needed to improve client uptake..
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Keywords: Implanon, implant, sub-dermal, contraceptive, Ilorin, Nigeria

INTRODUCTION

Contraception has been used in one form or another for thousands of years but the 20th century ushered in the era of modern family planning services (Okpere 2007). There are a wide range of contraceptives; Implanon was introduced as a user independent, long term hormonal contraceptive with minimal side effects. Marketing of Implanon was started in 1998 (Association of reproductive health professionals, 2008); it is a single 4 cm long 2 mm wide (Okpere, 2007; Burkman, 2007) rod with an ethylene vinyl acetate (EVA) copolymer core containing 68 mg etonogestrel (Okpere, 2007). The rate of release in the early weeks of insertion is 60-70 μg per day (Affandi *et al.,* 1999), it decreases to about 25-30 μg per day by the end of third year (Organon, 2006) but 25-30 μg per day of etonogestrel is needed to suppress ovulation (Funk *et al.,* 2005). The onset of contraception is within 24 hrs of insertion, the cumulative failure rate is low (Ladipo *et al.,* 2005) and the Pearl index is 0 (Affandi *et al*., 1999, Funk *et al*., 2005).

The mechanism of action involves thickening of cervical mucus, ovulation suppression and suppression of estradiol – induced cyclic maturation of the endometrium (Okpere, 2007, Ladipo *et al.,* 2005). The rod is usually inserted in the non-dominant upper arm using the trocar; its insertion and removal are quicker compared to Norplant and its mean time for insertion is 1.1 minutes and 2.6 minutes for the removal (Mascarenhas, 1998).

Implants can be a good choice for adolescent, women with medical disorders like hypertension or diabetes, anemia, endometriosis or those breastfeeding because progestogen only contraceptive

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like implanon does not increase the cardiovascular risks in healthy young women (MerkiFed, 2008). Its side effects include menstrual abnormalities, emotional lability, weight increase, depression and acne but with a rapid return of fertility when it is removed (Funk *et al.,* 2005, Sergent *et al.,* 2004). It is relatively new compared to other earlier methods in this centre and thus, it is important to evaluate its performance profile. This study therefore seeks to determine the safety, efficacy, acceptor characteristics of Implanon at the family planning clinic of University of Ilorin Teaching Hospital (UITH), Ilorin, Nigeria

MATERIALS AND METHODS

Setting

The study was conducted at the Family Planning Clinic of University of Ilorin Teaching Hospital, located in Ilorin, Kwara State of Nigeria. It is a tertiary centre that receives clients from Kwara State and the neighboring states of Kogi, Oyo, Osun and Niger states. The family planning clinic is responsible for providing contraceptive services to clients who present on their own or are referred for such services. Implanon was introduced into the range of services at this centre in 2007. The procedure for Implanon insertion involves extensive pre- and post-insertion counseling as well as further counseling during subsequent clinic visits.

Study design and population

This descriptive retrospective study consisted of all the 88 clients who received Implanon subdermal implant as the mode of contraception out of the total 2,456 clients who had contraception at the family planning clinic of UITH Ilorin, from January 2007 to December 2011.

Data collection procedure and analysis

All the qualified clients based on the inclusion criteria were identified from the family planning clinic database, their records were retrieved and relevant data extracted. Data of interest included age, parity, level of education, marital status, religion, number of children alive, source of information about implanon, side effects experienced, number that discontinued and the reasons for discontinuation. Collected data were presented as proportion.

RESULTS

During the study period, there were 2,456 clients who visited the University of Ilorin Teaching Hospital for contraception; out of which 88 opted for Implanon subdermal implant giving a prevalence of 3.6%. From Table 1, the mean age of implanon users was 33.4 years with a range of 20-49 years. Majority (42.1%) of the women who used Implanon sub-dermal implant were within the 30-34 years group. Women with two living children constituted 33% of the users; 1(1.1%) had none, 6 (6.8%) had one, 15(17.1%) had three, 28(31.8%) had four and 9(10.2%) had five or more children

Table 1: Socio-demographic characteristics of Implanon users

Variables	Distribution, n(%)
Age	
20-24	3(3.4%)
25-29	17(19.3%)
30-34	37(42.1%)
35-39	17(19.3%)
40-44	11(12.5%)
45-49	3(3.4%)
Number of children alive	
0	1(1.1%)
1	6(6.8%)
2	29(33.0%)
3	15(17.1%)
4	28(31.8%)
≥5	9(10.2%)
Level of education	
None	1(1.1%)
Primary	4(4.6%)
Secondary	20(22.7%)
Tertiary	58(65.9%)
Not stated	5(5.7%)
Religion	
Islam	41(46.6%)
Christianity	46(52.3%)
Not stated	1(1.1%)
Marital status	
Married	87(98.9%)
Single	1(1.1%)

alive. Majority 78(88.6%) of the clients had attained at least secondary education, 4(4.6%) had primary education, 1(1.1%) had no formal education while the educational status of 5(5.7%) were not stated. All the clients except one were married 87(98.9%); Christians constituted 52.3% of users and 46.6% were Muslims.

As shown in Table 2, most (81.1%) of the studied clients had information about Implanon from the Family Planning Clinic personnel; 8% had their information from friends and or relatives; 2.3% each had their information from poster and public campaigns. Only about 1% of the clients traced their source of information to Television programmes (Table 2).

Table 2: Source of information about Implanon

Source	Distribution, n(%)
Clinic personnel	72(81.8%)
Radio	7(8.0%)
Friend/relative	4(4.5%)
Public campaign	2(2.3%)
Posters	2(2.3%)
TV	1(1.1%)

From the study in Table 3, 22 of the clients representing 25% reported side effects following administration of Implanon. The commonest side effect reported was menstrual irregularity (59%), followed by weight gain and amenorrhoea (9% each). From Table 4, 23 out of 88 clients (26.1%) discontinued the Implanon during the study period. Out of this number, 35% discontinued because of desire to get pregnant, 26.1% discontinued it due to menstrual irregularity while 13% discontinued because of weight gain.

Table 3: Side effects profile of Implanon

Side effect	Distribution, n(%)
Menstrual irregularity	13(59.0%)
Weight gain	2(9.0%)
Amenorrhea	2(9.0%)
Abdominal bloating	1(4.6%)
Headache	1(4.6%)
Menstrual problem with Headache	1(4.6%)
Mood changes	1(4.6%)
Breast pain	1(4.6%)

Table 4: Reason for discontinuing Implanon

Reason	Distribution, n(%)
Desire for pregnancy	8(35.0%)
Menstrual irregularity	6(26.1%)
Weight gain	3(13.0%)
Reason not stated	2(8.7%)
Amenorrhea	1(4.3%)
Abdominal bloating	1(4.3%)
Mood changes	1(4.3%)
Bone pain	1(4.3%)

DISCUSSION

In this study, 3.6% of women using contraceptive methods in this facility used Implanon. This was higher compared to the report from the UK where 2% of contraceptive users used implanon (Monga *et al.,* 2011). Even though the reason for the observed higher value was not clear from this study, it may be due in part to the fact that the family planning personnel had direct contact with the clients who either visited the clinic at will or were referred as such were able to convince them. It is also possible for women with unmet need to readily accept the new contraceptives due to its campaigns of relatively minimal side effect with ease of usage.

Despite the fact that implanon has been found to be appropriate for teenagers (Clerk *et al.* 2006), no teenager or adolescent made use of Implanon during the study period. This showed the limited patronage of contraceptives by adolescents in this society and Africa at large. Societal norms in developing countries which invariably shuns on adolescent engagement in sexual activity and consequently neglecting the obvious widespread of unprotected sexual activity among adolescents with attendant consequences of teenage pregnancies should be addressed.

Most of the acceptors of Implanon contraception

in this study were educated with 88.6% having at least secondary education. Educated clients could be better informed about the needs for contraceptives vis-à-vis the side effects and ease of usage of the various available methods. A strong association has been reported from city slums in Kenya between women empowerment and choice of family planning as it enables them to have a say in fertility preference, use and choice of family planning methods (Okech *et al.,* 2011). Most of the acceptors of Implanon contraception were married (98.9%) further emphasizing the existence of cultural and attitudinal restriction on single women with regards to contraceptive uptake. Mekonnen *et al.,* (2011) reported from south central Ethiopia that married women with at least primary level of education were more likely to embrace contraception.

In this study, 25% of the users had side effects; this was lower than the 50% reported by Sergent *et al.,* (2004). The commonest side effect reported by users was menstrual irregularities (59%); this is similar to reports by Aisien *et al.,* (2010), who reported menstrual abnormalities as the major side effect reported by Implanon users in Benin City, Nigeria. The two commonest reasons for discontinuation of Implanon were the desire to get pregnant (35%) and menstrual disturbance (26.1%) respectively. However, most other studies reported menstrual abnormalities as the leading cause of discontinuation (Funk *et al.,* 2005, Sergent *et al.,* 2004, Lakha *et al.,* 2006). Aisien *et al.,* (2010) reported from Benin City that most of the subjects found menstrual abnormalities tolerable with adequate counseling. The lower rate of discontinuation arising from menstrual complaint in this study may be a reflection of the multiple counseling sessions before and after insertion. The continuation rates for implant use as reported by Ladipo *et al.,* (2005) were higher among those who have had adequate pre-insertion counseling; thus, improvement in counseling practiced will reduce the discontinuation rate.

The lack of post insertion complication reported in this study is in agreement with the study of Mutihir *et al.,* (2008) from Jos, Nigeria. The Pearl index found in this study was 0% as there was no pregnancy among users over the five year period. This is in agreement with reports of Affandi *et al.,* (1999), Funk *et al.,* (2005) and Power *et al.,* (2007).

CONCLUSION

Implanon is a highly effective long term reversible hormonal contraceptive, useful for different groups of women with a tolerable side effect profile. However, its benefits are being underutilized due to low uptake among contraceptive users. Public enlightenment should be vigorously pursued to improve awareness among women about Implanon usage in order to increase its uptake. In addition, wider access to Implanon should be ensured with adequate training of providers to minimize complications at insertion. The role of effective contraception should be emphasized in adolescent health program and public enlightenment to end the exclusion of this vulnerable group from contraception services.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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ORIGINAL ARTICLE

Utilisation and diagnostic yield of large bowel endoscopy at Korle-Bu Teaching Hospital

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Large bowel endoscopy, the most accurate diagnostic investigation of the colon and rectum has been available at the Korle-Bu Teaching for close to two decades and has been used mostly for diagnosis. This retrospective study assessed patients who have undergone large bowel endoscopy, with the aim of defining the utilization of the diagnostic yield and the predominance of the varied methods. From January 1998 to December 2011, a total of 2,151 patients comprising 1,302(60.5%) males and 763(35.5%) females underwent large bowel endoscopy. Patient age ranged from 8 to 100 years with a median age of 53 years and an inter-quartile range of 25 - 72 years. The proportion of the varied methods was: colonoscopy (832; 39%), flexible sigmoidoscopy (704; 33%), rigid sigmoidoscopy (406; 19%) and proctoscopy (192; 9%). Bleeding per rectum (57.0%) was the commonest primary complaint with an overall diagnostic yield of 48.4%. In 888(41.6%) cases no pathology was found. Haemorrhoidal disease accounted for 690(32.3%) cases followed by tumours 191(9.0%). Sigmoidoscopy (both rigid and flexible) diagnosed 141(95.3%) of the tumours and colonoscopy diagnosed the remaining 7(4.7%) tumours Complete colonoscopy was achieved in 491(59%) cases scheduled for colonoscopy. In most symptomatic cases the diagnostic yield of endoscopy was high with tumours being the second commonest diagnosis after haemorrhoids. Many of the tumours were diagnosed with the sigmoidoscope. It is therefore recommended that flexible sigmoidoscopy be made available in all hospital in Ghana.

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Keywords: Rectal bleeding, Colorectal symptoms, colon, bowel tumours, Ghana

INTRODUCTION

Lower gastrointestinal endoscopy: proctoscopy, sigmoidoscopy and colonoscopy, is a standard investigative procedure performed on the anus, rectum and colon. It offers direct visualization of the mucosa of the intestine and the choice of modality to perform is guided by the patients' risk level for large bowel cancer and availability of type of endoscopy and expertise (Pignone *et al.*, 2002; Rex *et al.*, 2009).

Proctoscopy examines the anal canal and rectum; rigid sigmoidoscopy examines the rectum and distal sigmoid colon whiles the flexible sigmoidoscope examines as far as the splenic flexure of the colon. The introduction of the flexible sigmoidoscopy has witnessed a decline in the use of the rigid sigmoidoscope worldwide because of patient comfort associated with the former, higher diagnostic yield as well as the ease of carrying out a flexible sigmoidoscope (Corman, 2005). Indeed, the gold standard colonoscopy, which examines the entire large bowel, has revolutionized the management of colonic diseases due to its relatively safe and low incidence of serious complication (Nelson *et al.*, 2002).

While this invaluable service has been provided at the Korle-Bu Teaching Hospital for close to two decades, no study has been conducted to assess the utilization and diagnostic yield of the various techniques. This study was thus conducted to provide baseline data and reference for future studies in the area of lower gastro-intestinal endoscopy and better still form the basis for protocol development and

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policy formulation on endoscopy practice in hospitals in Ghana.

MATERIALS AND METHODS

A retrospective, single centre study was conducted on consecutive patients who had lower GIT endoscopy at the Korle-Bu Teaching Hospital from January 1998 to December 2011. Data source was the register at the Endoscopy unit.

For each patient, age, gender and date of endoscopy were recorded. The indications for the test were noted and in cases where more than one indication is given, these were recorded as secondary and tertiary complaints. The type of endoscopic procedure, the extent of examination achieved and the endoscopic diagnosis were also recorded.

For patients in whom a tumour was identified at sigmoidoscopy, complete bowel examination was achieved with colonoscopy and/or barium enema. In view of the fact that the primary examination the patients were billed to undergo was sigmoidoscopy, such cases are captured under sigmoidoscopy in this study.

All procedures were performed by general surgeons and gastroenterologists, who are the endoscopists, after they have thoroughly reviewed the case. The patients comprised of those referred from hospitals and clinics within the Greater Accra metropolis as well as those receiving care in Korle-Bu Teaching Hospital.

Statistical analysis

The data extracted was entered into excel spread sheet and later transferred to IMB SPSS version 19, New York, for statistical analysis. Chi square test was done and p value < than 0.5 for considered significant.

RESULTS

A total of 2,151 patients comprising 1,302(60.5%) males and 763(35.5%) females, with ages ranging from 8 to 100 years and a median age of 53 years (IQ range: 25 - 72 years) underwent lower gastrointestinal endoscopy within the study period under review. Varied proportions of data for the variables studied were available,as shown in Table 1. . For all age groups and the various types of endoscopy males pre-dominated females (Figure 1 and 2).

Table 1: Proportions of data available on variables studied

Variable	No. of available data	Percentage available data
Age	1950	90.7%
Sex	2065	96.4%
Date of examination	2151	100.0%
Primary Complaint	1941	90.2%
Endoscopic Diagnosis	2137	99.3%
Type of endososcopic technique	2134	99.2%
Location of Lesion	2096	97.4%

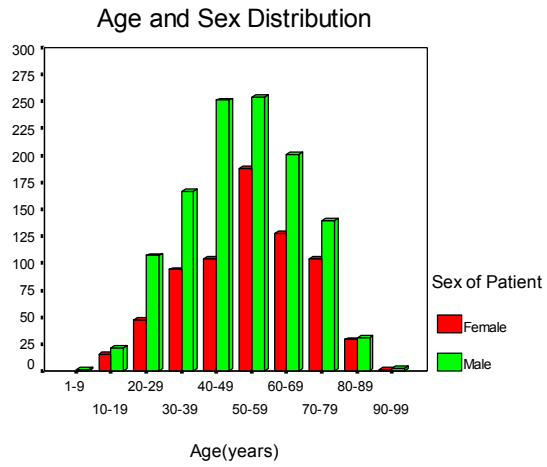

Figure 1: Age and sex distribution of the cases

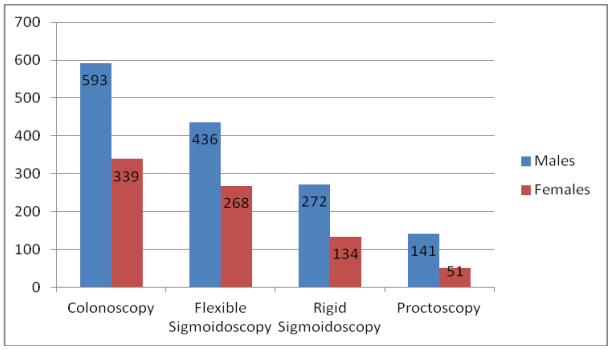

Figure 2: Distribution of the various endoscopic types by sex

There was a progressive increase in the utilization of endoscopic evaluation of the large bowel over the study period. It is worth noting that there was a drastic decline in 2007 (Table 2). The types of endoscopy performed were: colonoscopy 832(39%), flexible sigmoidoscopy 704(33%), rigid sigmoidoscopy 406(19%) and proctoscopy 192(9%) (Table 2). Before the age of 50 years usage of flexible sigmoidoscopy pre-dominate marginally followed by colonoscopy, rigid sigmoidoscopy and proctoscopy. However, after the age of 50 years usage of colonoscopy substantially pre-dominate followed by flexible sigmoidoscopy, rigid sigmoidoscopy and proctoscopy (Figure 3).

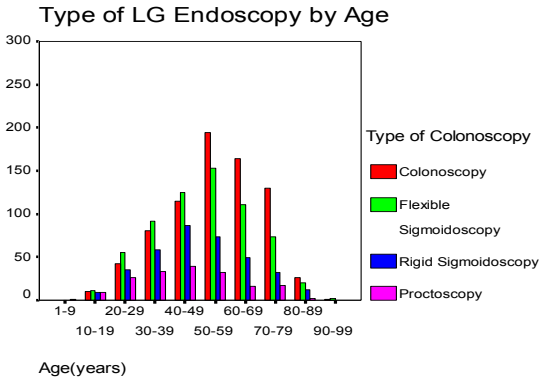

Figure 3: Types of Lower gastrointestinal endoscopy by age

Table 2: Annual frequencies of the various type of lower gastrointestinal Endoscopy

Years	Lower GI Endoscopy	Colonoscopy	Flexible Sigmoidoscopy	Rigid Sigmoidoscopy	Proctoscopy
n	*2151*	*832*	*704*	*406*	*192*
1998	39(1.8%)	15(1.8%)	7(1.0%)	16(3.9%)	0(0.0%)
1999	46(2.1%)	29(3.5%)	8(1.1%)	9(2.2%)	1(0.5%)
2000	46(2.1%)	23(2.8%)	17(2.4%)	3(0.7%)	1(0.5%)
2001	65(3.0%)	33(4.0%)	31(4.4%)	0(0.0%)	1(0.5%)
2002	95(4.4%)	40(4.8%)	48(6.8%)	3(0.7%)	6(3.1%)
2003	116(5.4%)	42(5.0%)	49(7.0%)	21(5.2%)	5(2.6%)
2004	120(5.6%)	52(6.3%)	26(3.7%)	33(8.1%)	6(3.1%)
2005	165(7.7%)	66(7.9%)	25(3.6%)	38(9.4%)	23(12.0%)
2006	190(8.8%)	99(11.9%)	43(6.1%)	39(9.6%)	9(4.7%)
2007	89(4.1%)	20(2.4%)	13(1.8%)	37(9.1%)	17(8.9%)
2008	404(18.8%)	215(25.8%)	166(23.6%)	5(1.2%)	15(7.8%)
2009	247(11.5%)	23(2.8%)	111(15.8%)	155(38.2%)	56(29.2%)
2010	246(11.4%)	106(12.7%)	109(15.5%)	19(4.7%)	9(4.7%)
2011	283(13.2%)	69(8.3%)	151(21.4%)	28(6.9%)	43(22.4%)

Bleeding per rectum (57.0%) was the commonest primary complaint. Other primary indications for lower GI endoscopy are as shown in the Table 3. When the studied population was stratified based on gender, significantly higher proportion of the males presented with bleeding per rectum (61.3%), haemorrhoids (1.8%) and anal discharge (1.2%) as compared to their female counterparts (49.3%, $p < 0.0001$; 0.7%, $p = 0.0454$ and 0.3%, $p = 0.0375$ for bleeding per rectum, haemorrhoids and anal discharge respectively). However, abdominal pain, follow-up post-surgery, abdominal mass as well as follow-up for IBD were more significantly associated with the female as compared to the male (Table 3). Multiple complaints were noted in 263(12.2%) patients who had two complaints and 6(0.3%) patients who had 3 complaints.

No pathology was found in a large number of patients 888(41.6%). Haemorrhoidal disease was the commonest pathology identified, 690(32.3%), followed by tumours 191(9.0%). More than one pathology was identified in 97(4.5%) patients. Other diseases found are detailed in Table 4. Sigmoidoscopy (both rigid and flexible) diagnosed 141 (95.3%) of the tumours and 44(57.9%) of the

Table 3: Frequencies of the primary complaints stratified by gender

Primary Complaint	Total	Female	Male	P value
n	*1941*	*696*	*1245*	
Bleeding per rectum	1106(57.0%)	343(49.3%)	763(61.3%)	< 0.0001
Abdominal Pain	136(7.0%)	69(9.9%)	67(5.4%)	0.0002
Diarrhoea	137(7.1%)	54(7.8%)	83(6.7%)	0.3677
Follow-up post-surgery	67(3.5%)	45(6.5%)	22(1.8%)	< 0.0001
Constipation	69(3.6%)	27(3.9%)	42(3.4%)	0.5638
Anorectal Pain	58(3.0%)	23(3.3%)	35(2.8%)	0.5404
Anaemia	51(2.6%)	18(2.6%)	33(2.7%)	0.9322
Change in bowel habit	64(3.3%)	23(3.3%)	41(3.3%)	0.9892
Rectal Mass	48(2.5%)	22(3.2%)	26(2.1%)	0.1445
Abdominal Mass	38(2.0%)	21(3.0%)	17(1.4%)	0.0118
Haemorrhoids	28(1.4%)	5(0.7%)	23(1.8%)	0.0454
Follow-up for IBD	23(1.2%)	14(2.0%)	9(0.7%)	0.0119
Screening	20(1.0%)	7(1.0%)	13(1.0%)	0.9359
Fistula-in-ano	16(0.8%)	3(0.4%)	13(1.0%)	0.1519
Anal Discharge	17(0.9%)	2(0.3%)	15(1.2%)	0.0375
Weight loss	19(1.0%)	9(1.3%)	10(0.8%)	0.2931
Abnormal Barium Enema	11(0.6%)	4(0.6%)	7(0.6%)	0.9720
Follow-up after polypectomy	13(0.7%)	2(0.3%)	11(0.9%)	0.1225
Flatulent dyspepsia	4(0.2%)	0(0.0%)	4(0.3%)	0.1344
Perianal Ulcer	3(0.2%)	0(0.0%)	3(0.2%)	0.1950
Pruritus Ani	3(0.2%)	1(0.1%)	2(0.2%)	0.9273
Others	10(0.5%)	4(0.6%)	6(0.5%)	0.7842

P values were generated from chi-square analysis comparing the male and female

Table 4: Endoscopic Diagnosis of the studied population (*n = 2134*)

Primary Findings	Prevalence
Normal Findings	888(41.6%)
Haemorrhoids	690(32.3%)
Tumours	191(9.0%)
Proctocolitis	90(4.2%)
Polyp	76(3.6%)
Diverticular Disease	65(3.0%)
Anal Fissure	30(1.4%)
Fistula-in-ano	18(0.8%)
Stenosis in the colon	16(0.7%)
Upper Gastrointestinal Bleed	12(0.6%)
Pus	9(0.4%)
Pale Mucosa	8(0.4%)
Ulcerative Colitis	10(0.5%)
Others	31(1.5%)

polyps while the rest of these lesions were diagnosed with the colonoscope 7(4.7%) of the tumours and 32(42.1%) of the polyps. Caecal intubation (complete colonoscopy) was achieved in 491 (59.0%) cases that were planned to have colonoscopy.

DISCUSSION

Endoscopy has revolutionized the management of diseases of the large bowel not only because it has become the diagnostic method of choice but also a major therapeutic modality for some pathologies of the bowel (Wolff and Shinya, 1971). Consistent diagnostic endoscopic service has been available at the Korle-Bu Teaching hospital since 1995, however, trends of its utilization and diagnostic yield for large bowel symptoms has not been studied, hence, the need for this study. This study reviewed cases from 1998 because data from 1995 to 1997 were unavailable.

Being a retrospective study the inherent problem of completeness of data was encountered. Data was hand-recorded and in some cases were not legible. Despite these, the completeness of the available data of interest ranged between 90 and 100 percent which is adequate for a meaningful analysis.

There was a high utilization of Colonoscopy and flexible sigmoidoscopy in this study. This is the result of both recognition of these procedures as gold standard for evaluating and treating lesions in the colon and rectum (Cappell and Friedel, 2002) and the availability of skilled personnel carrying out these procedures in the hospital. These personnel are, however, not dedicated endoscopists contributing to the low rate of complete colonoscopy (59%). Ten general surgeons and four gastroenterologists acting as the endoscopists take turns each in the course of the week to perform the procedure. The time allotment is small for each person who performs both gastroscopies and the lower gastrointestinal endoscopies at the same sitting.

Increase use of flexible sigmoidoscopy was witnessed with a decreasing utilization of rigid sigmoidoscopy over the studied period. In 2008, the later was the least performed endoscopic procedure. This follows the worldwide trend because of the superiority of the flexible sigmoidoscpe in detecting lesions and the ease of performing procedures such as biopsy and polypectomy with it (Traul *et al.*, 1983). In a retrospective study by Rao *et al.,* 33.9% of patients who were declared normal by rigid sigmoidoscopy had lesions on flexible sigmoidoscopy (Rao *et al.*, 2005).

Selection of a type of endoscopic procedure that was performed was informed by the patients' presenting symptoms and the likelihood of identifying a neoplasm which explains the predominance of flexible sigmoidoscopy over colonoscopy in patients who were aged less than 50 years, and colonoscopy exceeding flexible sigmoidoscopy in cases who were 50 years and older. The overall diagnostic yield in this study was 48.4%.

Detection of tumours in the large bowel is the single most important reason for endoscopy either in symptomatic patients or for screening purposes (Doubeni *et al.*, 2013). In a large study involving 16,433 symptomatic cases who underwent flexible sigmoidoscopy over a 16 year period in a single colorectal unit in south of England, it was shown that the chance of missing a proximal lesion with this procedure is about 2.5% (Thompson *et al.*, 2008). In West Africa about 50% of colorectal cancers are located in the rectum of which 78% are within reach of the examining finger, with another 20% in the sigmoid, descending and splenic flexure of the colon (Dakubo *et al.*, 2010; Irabor and Adedeji, 2009; Naaeder and Archampong, 1994).

This large proportion of tumours are recognisable with the flexible sigmoidoscope hence together with its short learning curve and ease of performance, it is appropriate to recommend its wide availability in all district hospitals (where it is currently unavailable) in the country and the resident doctors taught to use it. This has the potential of increasing the detection rate of early cancers since many cases of colorectal cancer that present late to the tertiary centres will be identified early at the peripheral hospitals and then referred. About 95% of the tumours and 58% of the polyps in this study were diagnosed with the sigmoidoscope (both rigid and flexible) while about 5% of the tumours and 42% of the polyps were diagnosed with the colonoscope from this study. Right colon cancers account for about 30% of colorectal cancer(Dakubo *et al.*, 2010). The observed low rate of right colon tumours noted in this study could be as a result of the stage and presentation of these tumours. They are mostly operated upon without endoscopy because they present as large obstructing lesions in emergent states.

In this study, proctosopy has been included as an endoscopic procedure for completeness of the data because it is routinely performed at the endoscopy unit. Its usage is limited to evaluation of the anal canal and lower rectum and permits biopsy of lesions as well as aiding in sclerotherapy of haemorrhoids. In young patients presenting with bright red bleeding and anal symptoms suggestive of haemor-

rhoids (feeling of warmth in the anus, pruritus ani, anal discharge and protruding anal mass at defaecation) this was the only test done since the likelihood that a proximal tumour will be missed is very low (Vening *et al.*, 2010). Additionally, although during sigmoidoscopy the anal canal can be visualized, it is not an effective substitute for proctoscopy.

Bleeding PR, abdominal pain, diarrhoea and constipation were the most frequent reasons for which patients underwent large bowel endoscopic procedure. These indications agree fairly well with those of the Clinical Category of European Panel on The Appropriatness of Gastrointestinal Endoscopy II (EPAGE II) (Juillerat *et al.*, 2009). This study also found that other relatively frequent indications as defined in the EPAGE II Clinical categorization guideline were pertinent and included iron deficiency anaemia, follow-up post colectomy, follow-up for IBD and screening for CRC. However, appropriateness analysis based on EPAGE II was not part of the scope of this study.

In more than one third of the patients, the colorectal mucosa and anal epithelium were deemed normal. However, it is important to note that colonoscopy was intended in only 39% of the cases. Even in this group completeness was achieved in only in 59%. These may contribute to a low diagnosis rate even though patients in whom colonoscopy was incomplete had their large bowel evaluated by double contrast barium enema, the data of which was not available for this study. Haemorrhoidal disease is not uncommon in the tropics as was thought in the past. It was the commonest disease reported in 32,3% of the patients signifying that other predisposing factors to the development of haemorrhoidal disease beyond diet are at play. Other common diseases noted were tumours (9.0%), proctocolitis (4.2%), polyps (3.6%) and diverticular disease (3.0%) cases. This compares disproportionately with a European series of lower Gastrointestinal endoscopy done over an 11 year period involving 11,550 cases in which cancers accounted for 4-6%, Inflammation, 9-15%, polyps 9-16% and diverticular disease 21-37% (Loffeld and van der Putten, 2005). Diverticular disease was found in 3% of patients which is understandably lower than the 4.5% reported from this hospital in patients who presented with haematochezia (Dakubo *et al.*, 2008). Bleeding is the commonest form in which diverticular disease presents in Tropical Africa and thus explaining the earlier higher frequency of this disease (Archampong *et al.*, 1978; Baako, 2001). Notably a very rare condition in blacks in the Tropics 10 cases of ulcerative colitis were diagnosed.

In patients that colonoscopy was planned, caecal intubation was achieved in 59%. This is higher than the 30.4% complete colonoscopy reported earlier when a smaller proportion (181 patients) of this population was studied (Dakubo *et al.*, 2008). Reasons for the low complete colonoscopy rate could be due to redundancy of the colon: sigmoid and transverse colon, difficulty in achieving adequate bowel preparation due to the bulky nature of stools, and the time available for each endoscopist who performs both upper and lower gastrointestinal endoscopies at the same sitting (Kim *et al.*, 2000). This low complete colonoscopy rate falls far short of the 92% reported from other centre were the procedures are performed by dedicated endoscopists (Selehi *et al.*, 2008). It is worrying when viewed against the background that 16.2% and 7.2% of tumours are located in the caecum and ascending colon respectively in our experience (Juillerat *et al.*, 2009).

CONCLUSION

Lower gastrointestinal endoscopy is an invaluable investigative procedure and in symptomatic patients has a high diagnostic yield. Most of the tumours were diagnosed with the flexible sigmoidoscope. It is recommended that flexible sigmoidoscopy be made widely available in all health institutions in Ghana.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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ORIGINAL ARTICLE

Stigma and discrimination associated with HIV/AIDS in health care settings: a comparative study in two hospitals of different categories in Douala-Cameroon

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The response to the human immunodeficiency virus epidemic faces many challenges with stigma and discrimination being two of them. The aim of this study is to determine the extent of effects of stigmatization and discrimination against people living with HIV-AIDS, and the influence of the type of hospital structure, in the manifestations of stigma and discrimination. A prospective cross sectional study was conducted among a total of 400 patients, using a pre-tested questionnaire. An observation form was also filled to evaluate attitudes and behaviour of health care providers towards patients. Chi-Square test and Fisher test were used to test association between two variables, then multi logistic regression tests were done to check predictive factors of discrimination. The level of significance was chosen at p<0.05. Among the participants, 104 (26%) patients reported having been victims of discrimination. Laquintinie hospital of Douala has a risk factor for blames and maltreatment (p = 0.0060) and (p= 0.0091) respectively. Also 152 (76.1%) patients of Laquintinie vs 103 (51.5%) of Nylon have been victims of stigmatization. The stigmatizing elements were: the name of the treatment center (p<0.0001) and the unconfidential manner of handling medical files (p=0.0527). Among the 400 patients, fifty nine (14.8%) avoided going to the hospital because of past experience of stigma and discrimination. Patients encounter several difficulties and those related to stigma and discrimination experienced in a hospital milieu can particularly constitute obstacles to better health seeking and therapeutic adherence. The human immunodeficiency virus infection response strategy should address stigma and discrimination by reviewing the management of treatment centers, elaborating relevant public health policies and training of healthcare practitioner.

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INTRODUCTION

The response to the human immunodeficiency virus (HIV) epidemic is gradually improving as a result of universal access to antiretroviral (ARV) (Oku *et al.,* 2013). The quality and life expectancy of people infected has extended significantly, although many challenges remain, notably that of stigma and discrimination (S & D) (Vanden Driessche *et al.,* 2009).

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The Joint United Nations Programme on HIV/AIDS (UNAIDS) defines stigma as a "process of devaluation of people either living with or associated with HIV and AIDS". Discrimination follows stigma and is the unfair and unjust treatment of an individual based on his or her real or perceived HIV status" (Vanden Driessche *et al.,* 2009). AIDS-related S & D refers to prejudice, negative attitudes, abuse and maltreatment directed at people living with HIV and AIDS (Lifson *et al.,* 2013).

Since the beginning of the epidemic, S & D have been identified as the main obstacles in the way of

effective responses to HIV (Mashimo *et al.,* 2001). S & D associated with HIV is a complex social process which interacts with and reinforces existing S & D associated with gender, race and poverty (Vanden Driessche *et al.,* 2009). Numerous studies have documented attitudes of healthcare providers toward people living with HIV (PLHIV) (Chan *et al.,* 2008, Kremer *et al.,* 2006, Oku *et al.,* 2013, Vanden Driessche *et al.,* 2009). Although the literature characterizes the attitudes and behaviour of healthcare providers as positive and respectful, many studies also report poor communication between patients and healthcare providers (Chan *et al.,* 2008, Kremer *et al.,* 2006), which functions as a major barrier in providing proper care for these patients (Tawfik and Kinoti, 2001).

Efforts to reduce S & D associated with HIV/AIDS will not only help countries achieving the key targets for universal access and Millennium Development Goal 6, they will also protect and promote human rights, promote respect for PLHIV and other interested groups and reduce HIV transmission. Reducing stigma and discrimination related to HIV/AIDS among health care providers will be useful not only for marginalized PLHIV and their partners, but also for health professional groups themselves, whose activities will be facilitated through easier collaboration with patients. Studies indicate that health care providers delay access to health care services in an attitude of S & D (Pruss-Ustun *et al.,* 2005, Oyeyemi *et al.,* 2006).

Stigma associated with HIV in Africa has been documented to be a barrier to disclosure of HIV status (Lifson *et al.,* 2013). Attitudes involved are shame, blame and judgment among others. In a study conducted in Kenya, 43% of the study population recognizes this obstacle (Feyissa *et al.,* 2012). A recent study in Cameroon showed that, 23% of victims have lost their jobs because of S & D (Yang *et al.,* 2007). Another study conducted in Buea in Cameroon, which is one of the first in a hospital setting, showed that the major problems faced by the PLHIV with regard to S & D were gossiping and verbal abuse through insults and derogatory language. This was felt by about half of the interviewees (Nguyen *et al.,* 2009). The aim of this study is to determine the extent of effects of stigmatization and discrimination against people living with HIV-AIDS and the influence of the type of hospital structure in the manifestations of stigma and discrimination.

MATERIALS AND METHODS

Study design and context

This cross-sectional and prospective study was conducted from January to April 2013. With the advent of HIV infection in Cameroon in the early 2000s, the government organized a response to the pandemic, with the establishment of centers to care for those infected. Authorized treatment centers (ATC) of Central Hospital of Yaoundé and Douala Laquintinie hospital were thus created. These centers are mainly characterized by their geographical location and their specificity marked by isolation and orientation reserved for the reception of patients infected with HIV. Over the years, several other centers called units of care have emerged particularly in district hospitals. Unlike older support units, these new centers have no specific geographical location and are actually virtual structures. Thus, support for PLHIV is provided by structures that do not have the same configurations. One would wonder if either of these configurations would not facilitate the perception of S & D.

Study sites

The study was conducted in two antiretroviral treatment (ART) centers in Douala: the Day Care Hospital (DCH) of Laquintinie hospital (site 1) and the Health Care Unit of Nylon district hospital (HCU) (site 2). Laquintinie hospital and Nylon district hospital are the two first centers of support for PLHIV in Douala, with over 40% of all patients being treated in this city (GTRL, 2012).

Laquintinie hospital is a second category center according to health care classification in Cameroon. It was established in April 2001 with the main objective of taking care of patients with chronic diseases such as HIV/AIDS, diabetes and hypertension but this is currently, not the case. DCH takes care of only HIV positive patients and currently has

a regular line of about 4200 patients per month (GTRL., 2012). The DCH is an ATC with a complete and separately dedicated physical infrastructure and located in a barrier within the confines of Laquintinie hospital. The HCU has been in operation since 2007 with an estimated active line of 4010 patients per month, who are regularly followed up (GTRL., 2012). HCU is a virtual structure with other conditions and people living with HIV being given support.

Sampling and sample size

HIV positive subjects who came for consultation or follow up visits were consecutively integrated in the study if they were 18 years or more, and had been followed up for at least 6 months at the center. In all, 410 patients were recruited and after excluding illegible and poorly filled questionnaires, 400 (200 for each hospital) questionnaires were retained for the study. All the patients accepted to take part in the study by signing an informed consent form.

Data collection

Data were collected in the DCH of Laquintinie and the HCU of Nylon district hospital using a questionnaire addressed to the patient and the information recorded accordingly. The questionnaire was pretested on 20 patients beforehand in both hospitals. Errors were corrected and questions were finally remodeled.

The questionnaire took into consideration different variables including: Socio demographic data (sex, age, marital status, religion, ethnic group, occupation, level of education, distance of residence), duration of follow-up, ARV medication status, opinion on structural organization of treatment center (name, location of treatment center), opinion on quality of health care given (habits during care administration in Consultation rooms, Laboratory, Pharmacy, Waiting room, counseling room), opinion on policies of treatment center (frightful/death-oriented posters, anti-discrimination office), effect of S & D on health-seeking behaviour (thought of avoiding hospital, effectively avoiding hospital, and hiding of status from healthcare providers). Each questionnaire was completed within an average time of 12 – 15 minutes. A form prepared to allow investigators to learn about the attitudes of healthcare providers towards PLHIV, including nursing, switching patients to different levels of health care, on the nature of the health care organization of the unit, on measures related stigma in hospital.

Ethical considerations

The confidentiality of data collected was conserved as the information was recorded in an anonymous coded questionnaire that is decodable only by the investigator. An informed consent form was given to each patient who read after thorough explanation before the interview and signed at the end of the interview. Permission to conduct the study was obtained from the National Ethics Committee.

Data analysis

Data was recorded using the software program EXCEL 2013, then exported and analyzed using the STATVIEW version 5.0 SAS Institute (Elford et al., 2012). For the analysis, the rules of descriptive statistics for the calculation of means and proportions of different variables were used. Data was first examined to check the distribution of all different variables, and then bivariate associations between different variables were checked using the Chi-square test and the Fisher exact test. Logistic regression was done to check predictive factors of discrimination.

RESULTS

Of the 400 respondents in the study, 282(70.5%) were female while 118(29.5%) were male. The mean age of the study population was 26 ± 5 years and a modal age range 29-39 years. Majority of respondents 267(66.7%) have had secondary education. Forty-seven percent (n = 188) of the patients were Catholics, 227(65.7%) were from the local languages Bamileke and Bamoun. Also 165(41.3%) of the patients were single, while 176(44%) were married or cohabiting with their partners. There were 374(93.5%) patients on ARV drugs with 278 (69.5%) who were followed for over 2 years and only 50(14%) who were followed for less than 1

year. Most of the respondents 226(56.5%) belonged to the informal private sector.

Manifestations of Discrimination

Discrimination was estimated to be 104 (26%) for the study with the prevalence in DCH of Laquintinie being evaluated at 34.5% which is almost twice that in HCU of Nylon (17.5%). According to these results, blames emerged to be the principal manifestation with 11% prevalence (p=0.0088) (Table 1).

Prediction of risk factors of Discrimination

There was a strong association between DCH of Laquintinie, the maltreatment (OR: 5.461; 95% CI: 1.526—19.545; p=0.0091), and blames (OR: 2.631; 95% CI: 1.319-5.249; p=0.0060). There was no association between DCH, insults and poor quality services. Nylon hospital as well as age, gender and level of education were not associated with any element of discrimination (Tables 2 and 3).

Table 1: Distribution of participants according to manifestations of discrimination

Variable	DCH, n(%)	HCU, n(%)	P value
Blames	33(16.5%)	13(6.5%)	0.0088
Insults	5(2.5%)	2(1.0%)	0.5275
Maltreatment	15(7.5%)	3(1.5%)	0.0134
Poor quality services	16(8.0%)	17(8.5%)	0.4630

DCH=Day Care Hospital and HCU=Health Care Unit

Influence of structural management of hospital, behavior of health care providers and policies of treatment center on stigma

These results shows that objective findings on stigmatizing attitudes and discriminatory habits of personnel, distinctive signs were always found on medical files, occasional voluntary/Involuntary disclosure of HIV status and rare situations of blame were observed in DCH of Laquintinie but none of these were observed in HCU of Nylon. Two patients often entered the consultation room at a time in Laquintinie but in Nylon only one was always observed. In Laquintinie, more than 2 patients were received in the pharmacy often. No death-oriented poster was found. (Table 4).

Responses of participants on influence of structural organization of hospital, quality of care and policies of treatment center on stigma

From these results, 152 participants (76.1%) in DCH of Laquintinie and 103 participants (51.5%) in HCU of Nylon experienced stigmatization. Twenty eight (7.02%) participants were uncomfort-

Table 2: Predictors of discrimination in relation with blames and maltreatment

Variable	Odds Ratio	95% CI	P value
Maltreatment			
Constant= yes	0.000	0.000—1.000	0.9948
Age	1.306	0.980—1.096	0.2074
Hospital=laquintinie	5.461	1.526—19.545	0.0091
Sex=male	0.551	0.172—1.760	0.3142
Primary education	684954.351	0.000—1.000	0.9966
Secondary education	4126923.694	0.000—1.000	0.9961
Tertiary education	1313663.24	0.000—1.000	0.9964
Blames			
Constant= yes	0.092	0.005—1.723	0.1105
Age	1.017	0.981—1.053	0.3687
Hospital=laquintinie	2.631	1.319—5.249	0.006
Sex=male	0.900	0.427—1.896	0.7814
Primary education	0.385	0.031—4.844	0.4603
Secondary education	0.404	0.034—4.758	0.4713
Tertiary education	0.568	0.043—7.462	0.6668

Table 3: Predictors of discrimination in relation with insults and poor services

Variable	Odds Ratio	95% CI	P value
Poor service			
Constant= yes	0.000	0.000—1.000	0.9955
Age	1.003	0.962—1.046	0.8758
Hospital=Laquintinie	1.293	0.618—2.207	0.4951
Sex=male	0.537	0.172—2.826	0.6235
Primary education	1727047.183	0.000—1.000	0.9963
Secondary education	3253724.909	0.000—1.000	0.9962
Tertiary education	5440087.243	0.000—1.000	0.9961
Insults			
Constant= yes	0.000	0.000—1.000	0.9956
Age	0.964	0.874 —1.062	0.4572
Hospital =Laquintinie	3.084	0.566—16.815	0.1930
Sex=male	0.471	0.050—4.458	0.5117
Primary education	1096479.046	0.000—1.000	0.9963
Secondary education	688786.253	0.000—1.000	0.9965
Tertiary education	777249.354	0.000—1.000	0.9964

Table 4: Findings observed in stigmatizing and discriminatory practices of staff attitudes in the waiting room, consultation room and pharmacy

Variable	Day Care Hospital		Health Care Unit	
	Response	Frequency	Response	Frequency
Waiting room				
Nature	Reserved only for PLWHA	always	Reserved for all patients	always
Nurses to patient ratio	3/55	often	3/5	often
Distinctive signs on file	Yes	always	No	always
Involuntary/voluntary disclosure	Yes	sometimes	No	always
Blames	Yes	Very rarely	No	always
Consultation room				
Nature	Reserved only for PLWHA	always	Reserved for all patients	always
Number of patients	2	often	1	always
Presence of other personnel	1	rarely	0	always
Inward/outward movements	Yes	Yes	sometimes	rarely
Pharmacy				
Nature	Reserved only for PLWHA	always	Reserved for all patients	always
Number of patients	5	often	2	rarely
Blames	Yes	Very rarely	No	always
Inward/outward movements	Yes	rarely	Yes	Very rarely
Refusal of ARV drugs	No	always	No	always

able about the name of treatment center (p<0.0001); 44(11 %) were uncomfortable about its location; 10 (2.5%), 147(36.8%) and 17(4.25%) respectively complained of Medical files indiscretion, ARV dispensation indiscretion, indiscretion in collection of laboratory results. Seven (1.75%) participants complained of frightful/death oriented posters (p=0.0076) (Table 5).

Table 5: Influence of structural organization of hospital, quality of care and policies of treatment center on stigma

Variables	DCH, n(%)	HCU, n(%)	P value
Uncomfortable by name of center	28(14.1%)	0(0.0%)	<0.0001
Uncomfortable by location of center	25(12.5%)	19(9.5%)	0.3377
Indiscretion of medical file	8(4.0%)	2(1.0%)	0.0527
Indiscretion of ARV dispensation	77(38.5%)	70(36.0%)	0.3087
Indiscretion in collecting lab results	7(3.5%)	10(5.0%)	0.4700
Frightful/death oriented posters	7(3.5%)	0(0.0%)	0.0076

About the knowledge on an organ fighting discrimination, these results show that, 44 out of 400 interviewees (11%) indicated knowing a complaint office in case of discrimination, 16(36%) reported it to be the ward in charge's office, 9(21%) reported it to be the director's office and 10(25%) still reported it to be a complaint/suggestion box.

Effects of Stigma and discrimination on health-seeking behaviour of participants

A total of 59 (14.8%) participants avoided going to the hospital because of previous experience of S & D, and16 (4%) of participants decided to hide their HIV status in situations of seeking health care services, all of the latter being those of DCH of Laquintinie with none in HCU of Nylon (Figure 1).

DISCUSSION

The proportions of epidemiological repartition of this study are correlated with current trends of HIV

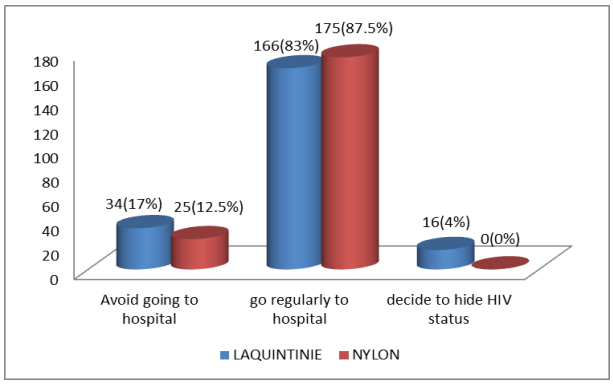

Figure 1: Health-related consequences of stigma and Discrimination

infection in Cameroon (GTRL, 2012). According to the report of the National Committee for the fight against AIDS in 2011, women were more infected than men with the most affected age group being 30-39 years with a prevalence rate of 8.1%. Globally, the prevalence of discrimination was estimated to be 26% with that of DCH of Laquintinie hospital estimated at 34.5% and HCU of Nylon at 17.5%. These two values are lower compared to the 36% revealed by Andrianasolo *et al.,* (2011), in Madagascar. Similarly, Peretti-Watel *et al.,* (2007), showed that 26.28% patients experienced discrimination by medical personnel. Elford, (2012), demonstrated that half of all cases of HIV discrimination were in health care settings. The results of this study revealed that the major manifestations were: blame, insults, maltreatment, and poor health services.

The most prominent manifestation of S & D was blame which was estimated to be 16.5%. This is significantly greater than estimates observed in DCH of Laquintinie (11.5%) and HCU of Nylon (6.5%). The results of this study confirmed that there were very rare cases of blame in Laquintinie with none in Nylon. Occurrence in DCH could be explained by the workload. Only three nurses provide care services for many patients who present themselves every day. This is in line with reports of Adebajo *et al.,* (2003) and Letamo, (2005). The results showed that the abuse experienced by PLHIV to DCH of Laquintinie (7.5%) were much higher than those experienced in HCU of Nylon (1.5%).

Maltreatment which can be manifested in this case as deliberately wasting time to render services, talking to patients without respect, denial of care, quarantine and verbal/physical abuse has been documented (Brown *et al.,* 2003). These authors showed that 10% of doctors and nurses have admitted having refused to care for an HIV-positive patient or had denied HIV-positive patients admission to a hospital. According to findings of Andrianasolo *et al.,* (2011), 18.5% of HIV patients were denied health care.

The second remarkable manifestation of discrimination is the poor services rendered to PLHIV, estimated to be 8.25%. However this manifestation is almost of same magnitude in both hospitals. Poor services was considered to be: using unnecessary precaution, unwarranted referral to other units or facilities, breach of confidentiality, charging for infection control supplies and addressing in hushed tones. A multivariate analysis to check the factors that predict discrimination: age, gender, level of education and hospital was conducted for all the 4 major manifestations of discrimination. The results showed that there were two times and five times more chance to respectively blame and maltreat patients in Laquintinie than in Nylon (OR: 2.631; 95% CI: 1.319—5.249; p=0.0060) and maltreatment (OR: 5.461; 95% CI: 1.526—19.545; p=0.0091). This can be explained by the workload and the pressure weighing on the nurses in the hospital Laquintinie.

It was found that, 152 participants (76.1%) in the DCH of Laquintinie hospital and 103 participants (51.5 %.) in HCU of Nylon experienced stigmatization. In Kenya it was found that 43% of participants experienced stigma and discrimination (Odindo and Mwanthi*,* 2008). The findings of this study demonstrated that the most cited element (36.8%) of stigmatization was indiscrete manner in which ARV medications were dispensed, that is to say: received in groups of 5-7 at a unit time; given in the presence of other persons not HIV positive patients; waiting room and Day hospital were well known by people as the only site of distribution; involuntary disclosure (calling of names). There was no significant difference in the indiscretion of ARV dispensation in Laquintinie (38.5%) and in Nylon (36%) (p=0.3087). Objective findings showed that there are rarely inward/outward movements into the pharmacy during drug dispensation.

The second element of stigma was the name of the treatment center, which had disrupted 28 patients (7.02%). The reasons being that HIV status is easily deduced because it is reserved for PLHIV only. In this case, all the 28 subjects in Laquintinie were disturbed by the name "Day Hospital" while there none in Nylon. This is justified by the fact that the treatment center in Nylon does not have a particular name like that of Laquintinie. The difference was statistically significant (p <0.001) showing that there is a strong association between the name of the hospital and the discomfort of subjects.

The third stigmatizing element was the conspicuous location of treatment center within the hospital premises being evaluated at 11 % where patients reported to be easily identified as PLHIV. The unit is close to the mortuary with subjects of Laquintinie (12.5%) being more troubled about this than those of Nylon (9.5%) with an insignificant difference between the two hospitals (p=0.3377). The indiscretion of medical files (2.5%,) followed the same trend as they are manipulated by all personnel, involuntary disclosure, signs, exploration of files in the presence of other persons. There was an association between this variable in favor of Laquintinie hospital (p=0.0527).

A total of 59 of interviewees (14.8%) avoided going to the hospital because of previous experience of stigma and discrimination. Some reasons for this motive were: Fear to be identified (7.1%), lack of confidentiality on the part of the personnel (4.7%), fear to be insulted (0.5%), fear to be blamed (0.2%), complain of poor quality services rendered (2.7%), and poor welcome (6.4%). This finding is consistent with that of Campbell *et al.,* (2012), who revealed that perceived and experienced stigma are associated with reduced utilization of prevention services. It was confirmed that experienced and perceived stigma are associated with reduced access to care and treatment by PLHIV (Kinsler *et al.,* 2007).

Also 16 participants (4%) decided to hide their HIV status in case of seeking health care services because of: fear of been identified (2%), fear that their status will be disclosed to others (1%), fear of being verbally abused or harassed (0.7%). The current study agrees with previously published study by Chesney and Smith, (1999), who demonstrated that stigmatization has an effect on health care seeking and strict adherence to medications. The major limitation of this study was the lack of data from the wards and specialized consulting rooms. Additionally, all the elements required to assess stigmatization and discrimination in this study may not have been considered. However, referring to current literature on the subject matter, we took account of the possible variables ever used beforehand. So this study provides important information on determining the extent and impact of stigma and discrimination in a hospital setting.

CONCLUSION

Several difficulties are encountered by patients and particularly those related to stigma and discrimination experienced in a hospital milieu, can constitute obstacles to better therapeutic adherence. The fight against stigma and discrimination should be included in the strategy against the fight against HIV infection by reviewing the management of treatment centers, elaborating relevant public health policies and training sessions.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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