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Pattern of contraception among prior female users in a tertiary hospital in Northern Nigeria

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Abstract

Experience with prior use of contraception may contribute to low uptake rates of modern contraceptives.

Objective: The objective of the study was to determine the pattern of current contraception among women with prior contraceptive use.

Methods: This was a retrospective study at a tertiary hospital in northern Nigeria. Available client records from the family planning clinic from January 1st, 2000 to March 31st, 2014 were retrieved. Information was collected on demographics, reproductive and contraceptive history. Data was analyzed using SPSS version 15 with significance level at $P<0.05$.

Results: Majority of clients were aged <35 years (71.7%); educated to secondary level (56.9%); Muslims (52.3%) and were spacing (76.2%). Only 2621 (43.8%) had used prior contraception and were more likely to be older, Christians, of higher parity, want no more children and use the intrauterine device (IUD) and implants for contraception ($p<0.05$). The commonest type of prior contraception was injectables (45.2) and current contraception was IUD. About 42.1% continued their prior contraception. Age, religion, number of living children and reason for contraception were significantly associated with client's choice to continue prior contraception, or to switch to a new form of contraception ($p<0.05$), while educational status was not ($p>0.05$). On logistic regression, religion was the only significant variable in the model ($p<0.05$).

Concusion: The preferred form of current contraception among prior contraceptive users in our setting is the intrauterine device, and less Muslims are continuing with their prior choice.

Keywords: Contraception, prior contraception, female users, Northern Nigeria

Introduction

The maternal mortality ratio for Nigeria is 576 deaths per 100,000 live births which is quite alarming [1]. Effective contraception has proven to be a substantial and effective primary prevention strategy to reduce maternal mortality in developing countries [2,3]. According to the findings of the 2013 Nigeria Demographic and Health Survey (NDHS), knowledge of contraception is widespread in Nigeria; 85 percent of women and 95 percent of men report knowing about a contraceptive method [1]. Yet only fifteen percent of currently married women use a contraceptive method, an increase of only 2 percentage points from the 2003 NDHS [1]. Several reasons may account for the low uptake rates of modern contraception, including experience with prior use of contraception which is the focus of this study. Are there a lot of women with prior contraceptive use returning to the family planning clinics for repeat use? If so, are their choices the same or different from their previous choices? Repeat contraceptive use is unlikely to have been coerced. Those with prior use of contraception are likely to be more aware about contraceptive methods, including side effects, from previous counseling and previous use. Prior contraceptive experience may affect self-efficacy, the decision-making process for current or future contraceptive use and the next choice for contraceptive options [4,5]. Personal use and experience of contraception may lead to a satisfied or dissatisfied client. Perhaps satisfaction or dissatisfaction with a prior contraceptive method may influence

future choices (continuation or discontinuation of a method) and affect overall uptake of contraception. Apart from discontinuation, dissatisfaction with a method of contraception can further lead to non-use, improper use or switching to a less reliable method of contraception [6-8].

A previous study done in Europe and South Africa showed that higher satisfaction rates among transdermal patch users were associated with higher adherence rates, compared to oral contraceptive (OC) users, who experienced both lower satisfaction rates and lower adherence rates [6,9]. The St. Louis Contraceptive CHOICE Project also showed that LARC (long acting reversible contraceptive) users exhibited both higher satisfaction (80% versus 54%) and continuation rates (86% vs. 55%) compared to OC users [6,7]. In India, it was noted that continuing the use of injectable contraception was greater among women who experienced fewer side effects, received good quality of care and when the decision to adopt injectable contraceptives was made jointly by the woman and her husband [10]. Several Nigerian studies also report discontinuation of contraception due to side effects or a desire for more children [11-18].

While there are a lot of local and international studies on contraception in general, few have focused on prior contraceptive use. People who report contraceptive use need to be encouraged to maintain their behaviour, while those who do not, need to be motivated [19]. This study is important to document experience of contraception among prior female users, and because knowing the pattern of contraceptive choices following prior use is important to aid patient counselling, improve uptake and compliance, inform supply, and direct future contraceptive research and training of service providers.

Materials and methods
This was a retrospective study done at the Barau Dikko Teaching Hospital (BDTH), Kaduna, northern Nigeria. The hospital serves as a major referral facility for the metropolis and its environs. Approval for the study was gotten from the Kaduna State Ministry of Health. Client information was kept confidential. A family planning card is opened for all new clients to the facility. All available client records from the family planning clinic from January 1st, 2000 to March 31st, 2014 were retrieved without exclusion. Information was collected on demographics, reproductive, menstrual and contraceptive history, including prior use and contraceptive method chosen. Relevant data were analyzed using the statistical package for social sciences (SPSS) version 15. Missing responses were stated as such and excluded from analysis. Descriptive analysis was done using frequencies and percentages. Chi -square and logistic regression was used to test the association between prior and current use of contraception. Significance level was established at P<0.05.

Results
A total number of 5,992 client cards were retrieved and records

indicate that all clients were female and married. Demographic characteristics are shown in **Table 1**. Majority of clients, 71.7%, were aged <35 years while 28.3% were aged 35 years or above, with a mean age range of 30-34years. Majority of clients, 56.9% were educated up to, and completed their secondary education, while about 9.9%had received no form of formal education. There were more Muslim clients (52.3%) than

Table 1. Socio-demographic and general characteristics of clients.

Characteristic	Frequency (%)
Age in years (n=5992)	
<20	131 (2.2)
20-24	985 (16.4)
25-29	1501 (25.1)
30-34	1680 (28.0)
35-39	1053 (17.6)
40-44	455 (7.6)
45-49	139 (2.3)
≥50	47 (0.8)
Missing	1 (0.0)
Education (n=5992)	
None	595 (9.9)
Some primary	409 (6.8)
Completed primary	861 (14.4)
Some secondary	685 (11.4)
Completed secondary or more	3410 (56.9)
Missing	32 (0.6)
Religion (n=5992)	
Islam	3135 (52.3)
Christianity	2278 (38.0)
Others	33 (0.6)
Missing	546 (9.1)
Number of children living (n=5992)	
0	0 (0)
1-2	1857 (31.0)
3-4	1901 (31.7)
>4	2147 (35.8)
Missing	87 (1.5)
Want more children? (n=5992)	
No	624 (10.4)
Yes	4565 (76.2)
Unsure	362 (6.0)
Missing	441 (7.4)
Source of information (n=5992)	
Clinic personnel	3737 (62.4)
Outreach personnel	53 (0.9)
Radio	247 (4.1)
Television	177 (3.0)
Print media	18 (0.3)
Friends/relatives	1209 (20.2)
Another clinic	14 (0.2)
Community health worker	35 (0.6)
Others	6 (0.1)
Missing	496 (8.2)
Chosen (current) contraception (n=5992)	
Oral contraceptive pills	673 (11.2)
Injectables	2423 (40.4)
Implants	223 (3.7)
Intrauterine devices	2096 (35.0)
Missing	577 (9.7)

n=total number of clients analysed

Christians (38%), while the others were missing or unspecified (9.7%). There were no nulliparous clients recorded, while 31% had a parity of 1-2, 31.7% had a parity of 3-4 and 35.8% were grand multipara. The reason for contraception was for spacing in 76.2% of clients, while 10.4% of clients no longer wanted children. Clients received information about contraception from a variety of sources; most commonly from clinic personnel (62.4%) and friends/relatives (20.2%). The commonest form of contraception chosen by clients was "injectables" (40.4%), followed by intrauterine devices (35%), oral contraceptive pills (OCP)(11.2%) and contraceptive implants (3.7%). There were no records of barrier and permanent methods. Only 2621 (43.8%) of the study population had used prior contraception. As shown in **Table 2**, prior contraceptive users

Table 2. Cross tabulation of socio-demographic/general factors and status of prior contraceptive use.

Characteristic	Prior contraceptive use?		Statistical test
	No	Yes	
Age in years (n=5988)			
<20	124 (94.7)	7 (5.3)	
20-24	779 (79.2)	205 (20.8)	X^2=598.434
25-29	871 (58.0)	630 (42.0)	df=7
30-34	963 (57.3)	717 (42.7)	p= 0.00
35-39	456 (43.3)	598 (56.7)	
40-44	146 (32.2)	307 (67.8)	
45-49	24 (17.3)	115 (82.7)	
≥50	4 (8.5)	43 (91.5)	
Total	**3367 (56.2)**	**2621 (43.8)**	
Education (n=5957)			
None	350 (58.8)	245 (41.2)	X^2=47.132
Some primary	247 (60.4)	162 (39.6)	df=4
Completed primary	560 (65.1)	300 (34.9)	p= 0.00
Some secondary	343 (50.1)	342 (49.9)	
Completed secondary or more	1855 (54.4)	1553 (45.6)	
Total	**3355 (56.3)**	**2602 (43.7%)**	
Religion (n=5443)			
Islam	1754 (56.0)	1378 (44/0)	X^2=36.381
Christianity	1097 (48.2)	1181 (51.8)	df=2
Others	23 (69.7)	10 (30.3)	p= 0.00
Total	**2874 (52.8)**	**2569 (47.2)**	
Number of children living (n=5902)			
1-2	1355 (73.0)	*501 (27.0)*	X^2=351.956
3-4	984 (51.8)	*915 (48.2)*	df=2
>4	949 (44.2)	*1198 (55.8)*	p= 0.00
Total	**3288 (55.7)**	*2614 (44.3)*	
Want more children? (n=5548)			
No	176 (28.3)	446 (71.7)	X^2=254.212
Yes	2644 (57.9)	1920 (42.1)	df=2
Unsure	120 (33.1)	242 (66.9)	p= 0.00
Total	**2940 (53.0)**	**2608 (47.0)**	
Source of information (n=5493)			
Clinic personnel	1973 (52.8)	1761 (47.2)	
Outreach personnel	10 (18.9)	43 (81.1)	
Radio	116 (47.0)	131 (53.0)	X^2=96.058
Television	87 (49.2)	90 (50.8)	df=8
Print media	18(100.0)	0 (0.0)	p= 0.00
Friends/relatives	618 (51.1)	591 (48.9)	
Another clinic	14 (100.0)	0 (0.0)	
Community healthworker	35 (100.0)	0 (0.0)	
Others	0 (0.0)	6 (0.0)	
Total	**2871 (52.3)**	*2622 (47.7)*	
Chosen (current) contraception (n=5412)			
Oral contraceptive pills	503 (74.7)	170 (25.3)	
Injectables	1298 (53.6)	1122 (46.6)	X^2=186.199
Implants	101 (45.3)	122 (54.7)	df=3
Intrauterine devices	944 (45.0)	1152 (55.0)	p= 0.00
Total	**2846 (52.6)**	**2566 (47.4)**	

n=total number of clients analysed, X^2=chi square, df=degree of freedom, p=p value (significance level)

were more likely to be older, Christians, of higher parity, want no more children and to use the intrauterine device (IUD) and implants for contraception (p<0.05). On the other hand, first time users were more likely to be younger, Muslims, of lower parity, want more children and use oral contraceptive pills and injectable for contraception (p<0.05). On cross tabulation the role of education and source of contraceptive information is less clear but still significantly different when prior contraceptive users are compared to new users (p<0.05).

Among the subset of prior users, the commonest type of contraception used in the past was injectables (45.2%), followed by IUD (26.7%) and OCPs (25.5%) while there were 65 missing responses (2.5%) (**Figure 1**). Also among this subset of prior users, their current choice of contraception was most commonly IUD (43.9%), then injectables (42.8), OCP (6.5%), and implants (4.7%) **Figure 1**).

Among the subset of prior users, 1103 clients (42.1%) continued their prior method of contraception, 1414 (53.9%) switched methods and there were 140 (4%) missing responses. **Table 3** shows that there was significant difference between the specific methods of past and current contraception among prior users (P<0.05). In majority of women that previously used OCPs, their preferred method for current contraception changed to injectable methods and only 9.1% continued using OCPs. More users of injectable contraception and IUDs still preferred to continue the same method for current contraception. Continuation rate for injectables was 50.2% and IUDs was 68%.

As shown in **Table 4**, age, religion, number of living children and reason for contraception were significantly associated with client's choice to continue prior contraception or to switch to

a new form of contraception (p<0.05), while educational status was not (p>0.05). Those aged <35 years were more likely to switch to other forms of contraception than those aged >35 years. Muslims were more likely to switch to other forms of contraception than Christians. Those of parity 1-4 were more likely to switch to other forms of contraception than those of parity >4. Those who wanted contraception for spacing were more likely to switch to other forms of contraception than thoselimiting their family size.

Logistic regression (**Table 5**) however shows that the odds of continuing with the same type of prior is 1.039 times higher for respondents with age less than 35 years than those with age greater than 35 years; 1.129 times higher with primary level or no education than those with secondary level or more education; is 0.456 less for Muslim respondents than the Christian respondents; and 0.841 times less for respondents with four or less children than those with more than four children. Overall however, religion was the only significant variable in the model (p<0.05).

Discussion

It is interesting to note that all clients were married. Since there were no exclusions, perhaps there was inadequate privacy and clients do not disclose their status for fear of stigma, especially in a more conservative setting of northern Nigeria. Other studies agree that in Nigeria, family planning clinics may not be adolescent-friendly, especially for unmarried adolescents, since it is regarded as the exclusive preserve of the married [17,18]. Also, record keeping for barrier and permanent methods of contraception was poor, especially as they were sometimes provided by other departments of the hospital and so was not captured in our data.

In our study, 43.8% of the study population had used prior contraception. Not too many studies have specifically looked at prior contraceptive use, so it is difficult to make comparison to our study. In one study done in Ilorin (Nigeria), 5,563 of 10,002 (55.6%) family planning clients had used contraception in the past [20]. In Jos 82% of 1401 women that accepted Jadelle contraceptive implants had previously used other contraceptives (mostly short-acting methods such as injectables, pills, and condoms) [18].

Prior contraceptive users presenting to our clinic were more likely to be older, Christians, of higher parity, and want no more children. The reasons for this may not be far-fetched.
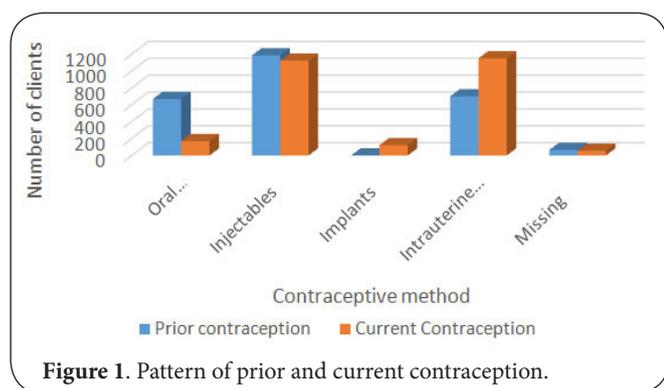

Figure 1. Pattern of prior and current contraception.

Table 3. Comparison of prior and current choice of contraception used by the subset of prior contraceptive users.

Prior contraception	Current chosen contraception				
	OCPs	Injectables	Implants	IUDs	Row Total (%)
Oral contraceptive pills (OCPs)	61 (9.1%)	383 (57.2%)	8 (1.2%)	217 (32.4%)	669 (100%)
Injectables	43 (3.7%)	578 (50.2%)	96 (8.3%)	434 (37.7%)	1151 (100%)
Intrauterine devices (IUDs)	55 (7.9%)	150 (21.5%)	18 (2.6%)	474 (68.0%)	697 (100%)

Number of respondents=2517; Pearson Chi square=314.214; Degree of freedom=6; P value=0.000

Table 4. Cross tabulation of several factors and status of continuing prior contraception or not.

Variable	Continuing contraceptive method?	
	Yes (row %)	No (row %)
Age (n = 2516)		
<35 years	646 (42.4)	878(57.6)
>35 years	456 (45.9)	536 (54.1)
Likelihood ratio=34.285; df=4; p=0.000		
Education (n=2497)		
Primary or none	315 (46.1)	369 (53.9)
Secondary or more	778 (42.9)	1035 (57.1)
Pearson Chi Square=4.571; df=4; p=0.334		
Religion (n=2454)		
Islam	470 (35.2)	864 (64.7)
Christianity	595 (53.2)	525 (46.8)
Pearson Chi Square=95.106; df=4; p=0.00		
Living children (n = 2509)		
1-4	572 (42.9)	761 (57.1)
≥5	531 (45.1)	645 (54.9)
Likelihood ratio=42.163; df=4; p=0.000		
Want more children? (n=2315)		
No (limiters)	198 (45.5)	237 (54.5)
Yes (spacers)	822 (43.7)	1058 (56.3)
Pearson Chi Square=219.424; df=4; p=0.00		

n=number analysed, df=degree of freedom, p=significant value

Table 5. logistic regression of several factors and status of continuing prior contraception or not.

Variables	Status of contraception				
	Same (%)	Switch(%)	OR (crude)	95% CI	*P*
Age (Years)					
< 35	646(42%)	878(58%)	1.039	0.871-1.241	0.669
> 35	456(46%)	536(54%)	--	--	--
Religion					
Christianity	595(53%)	525(47%)	.456	0.384 -0.542	0.000
Islam	470(35%)	864(65%)	--	--	--
Level of Education					
Primary or none	315(46%)	369(54%)	1.129	0.941-1.396	0.261
Secondary or more	778(43%)	1035(57%)	--	--	--
No of Children					
1-4	572(43%)	716(57%)	.841	0.694 -1.020	0.079
>4	531(45%)	645(55%)	--	--	--

Older women may have been exposed to coitus longer and have a higher and continuing need for contraception. Also, women of higher parity and wanting to limit their family size may be more motivated to seek out contraceptive services. Indeed, couples and women who desire more children are less likely to use contraception [21]. Other studies also show an inverse relationship between number of living children and use of contraception [22,23]. The findings that Muslim women in the northeast and northwest of the country are less likely to have an unmet need to limit fertility are consistent with the higher fertility levels found in those regions [24].

Among prior contraceptive users, the commonest type of contraception used in the past was injectables (45.2%). This is in keeping with national Nigerian statistics; injectables are the commonest form of modern contraceptives used by Nigerian women (3%), followed by condoms and pills (2%) [1]. Injectables being the commonest type of contraception used in Nigeria is similar to what was found in other studies [12-15], but contrasts with the findings from Jos, north-central Nigeria where IUD was the commonest [25]. Injectable methods may be popular because they offer contraception that is effective, reversible, does not

require daily use, and can be concealed from spouses [26]. In our study, implants did not feature as a method of prior contraception probably because of the timing of introduction of the product to the center. Hence, choice of contraception also depends on the supply of commodities, type of counseling received and provider bias. Nigeria has a narrow scope of contraceptive methods available in the country in comparison to developed countries, and is constantly trying to expand this. With economic recession and low spending on health, it might be more cost effective to tailor contraceptive supply to patient's preferences. Women, no matter where they live, should have access to lifesaving contraceptives [27]. Uniform distribution of available contraceptives across all parts of the country is thus important since implants had been introduced to the country as early as 1985 [28].

Our study showed that there were significant differences between the specific methods of past and current contraception among prior users. The commonest choice for current contraception among prior users in our study was IUD rather than injectables. The IUD is very popular and is widely used in Nigeria, particularly by older married women [11]. Worldwide and in low income countries, there is a growing trend towards increased use of long acting reversible contraception (LARC) which includes the IUD [29]. Apart from its longer action, the IUD is also effective and has more satisfaction and less discontinuation rates. In this study, 68% of prior IUD users chose to continue with IUD. This may imply high satisfaction rates. But a study in Jos showed 46.3% of clients discontinued IUD within 3 years with the highest rate at 1 year (24.2%), commonly due to a desire for pregnancy (50.9%), excessive menstrual bleeding (10.4%), vaginal discharge PID (9.0%), and other reasons [30].

Among prior OCP users in this study,19% chose to continue OCP, which is quite low. Oral contraceptive use is however generally characterized by relatively high discontinuation rates and low adherence to treatment due to the shorter action and daily dosing regimen [31]. According to the Nigerian Health and Demographic Survey contraceptive discontinuation rate is 28% within a year, and it is highest for pills and injectables (26% and 23%), while for IUD it is 9.1% [1]. In one Swedish study, the most prescribed and dispensed hormonal contraceptives during the study period were combined oral contraceptive pills (COC) and the type prescribed affected continuation/discontinuation rates. Women who received an initial prescription of ethinylestradiol combined with either levonorgestrel or drospirenone were more prone to continue with the same drug, while women who received desogestrel-only had a 35% higher probability to choose another type of contraceptive within 6 months of use [32].

Among prior injectable users in this study,50.2% choose to continue with injectables. Some studies in Africa and the Philippines found that some of the discontinuers of injectable contraception were "taking a break" mainly due to abnormal bleeding patterns and intended to return for another injec-

tion when their normal menstrual cycle returned [33,34]. Unfortunately, this results in improper use of contraception which may lead unintended pregnancies [33,34]. Following discontinuation of injectable contraceptive use in India, about three in ten women switched immediately to another contraceptive method [10]. Some health care providers also noted that method switching was common among women who discontinued using injectable contraceptives for method-related reasons, and that the two methods to which women most commonly switched were tubal ligation and the IUD [10].

Religion was a significant factor determining if prior users chose the same method or switched to another form of contraception. Muslims were more likely to switch to other forms of contraception than Christians in our study. It is important to note that some level of method-related discontinuation is to be expected if a woman starts using a method and then finds that it is not suitable for her needs or preferences [27]. Abnormal bleeding patterns are common side effects of most forms of contraception and can disrupt worship for Muslims [26]. and may account for why they switch methods in search for a more suitable one.

This study is however limited by its retrospective, quantitative design and was hospital based. Deeper understanding of experiences with prior contraception, reasons for continuation and discontinuation of a specific method of contraception would be better using qualitative or mixed methods. Generalization of findings to the community is limited as a community study can better detect women with prior contraceptive use that do not come to the hospital.

Conclusions

The preferred form of current contraception among women with prior contraceptive use in our setting was the intrauterine device and this should be taken into consideration when counselling and supplying contraceptives. Overall, when comparing prior and current contraceptive use among clients, there is a move towards longer acting contraceptives (injectable to IUD), though national contraceptive uptake is still low. Less Muslims were continuing their prior form of contraception. The range of contraceptive commodities needs to be expanded and evenly distributed country wide to improve access to effective contraception and reduce unmet needs from method discontinuation. Counselling should be improved for women to cope with side effects. Further qualitative studies are however, needed to further elucidate findings. Family planning clinic and providers in Northern Nigeria should ensure adequate privacy and positive attitudes for their clients so that contraceptive needs of single but sexually active females, single parents, widows or divorcees can be met. Quality of record keeping also needs to improve.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

Authors' contributions	MDA	AJ	BS	AA	MC	TM	AL
Research concept and design	✓	--	--	--	--	--	--
Collection and/or assembly of data	✓	✓	✓	✓	✓	✓	✓
Data analysis and interpretation	✓	--	--	--	--	--	--
Writing the article	✓	--	--	--	--	--	--
Critical revision of the article	✓	✓	✓	✓	✓	✓	✓
Final approval of article	✓	✓	✓	✓	✓	✓	✓
Statistical analysis	✓	--	--	--	--	--	--

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