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COMPARATIVE STUDY ON EXPERIENCES OF SOME USERS OF ORAL PILLS AND INJECTABLE CONTRACEPTIVE DEVICES AND THEIR REPORTED ADVERSE DRUG EFFECTS

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Abstract

Patients' experiences on contraceptive devices can have profound effects on clinical outcomes. We study this parameter as a guide toward planning comprehensive care for contraceptive users that will involve safety and patients' education. The objectives of the study were to identify factors relating to choice of oral and injectable contraceptive agents and to compare the common adverse effects reported on both agents. Out of 170 patients comprising 90 oral pills and 80 injectable users, the age of users peaked at 25-29 years and those above 40 years constituted 5.5%. Seventy per cent of pill users were below 30 years while the rest 30% are 30 years and above. This corresponds to 55% and 45% of injectable users respectively. The unmarried patients accounted for 27(13.5%) while married and widowed patients are 84.5% and 2.0% respectively. Users of oral pill took this method because of convenience 48(53.3%), affordability 13(14.4%), compliance 7 (7.7%) and ease of use 22 (24.4%). The corresponding proportions of patients on injectable contraceptives are 56(65.0%), 14(17.5%), 8(10.0%) and 12(15.0%) respectively. Headaches were reported in 65(38.2%) cases; being 36(40.0%) and 29(36.3%) among oral and injectable users respectively while nausea and vomiting occurred in 16(17.8%) and 2(2.5%) of oral and injectable users respectively with significant difference ($P<0.005$) existing between them. The higher menstrual irregularities among injectable users (24; 30.0%) were significantly higher ($P<0.005$) than the 10(11.1%) observed among pill users. Similarly, weight gain was significantly difference ($P<0.005$) between the two users being 2(2.2%) and 13(16.3%) respectively for oral and injectable users. This study underscores the need to adequately communicate these variables to patients so as to guide their well informed choices and to always monitor responses during pharmaceutical care.

Key Words: Oral contraceptive users, injectable contraceptives, Headache

Introduction

Generally contraceptive methods fall under one of the following: barrier contraceptives such as the male and female condom; oral contraception pills like the combined oral contraceptive pills or progesterone only pills; non-oral hormonal contraceptive agents like implant, patch and injectable type; intrauterine devices; emergency contraception; sterilization for male or female; natural or withdrawal method, rhythm method, basal body temperature and cervical mucus method (NIH, 2013). Despite these lots, oral pills and the injectable forms are by far the most widely used methods by most patients. They seemed to have gained more popularity and acceptability among most women or families to control birth or space child bearing compared to other methods.

Contraceptives agents can also be the reversible hormonal agents and reversible non-hormonal agents with others existing in the form of irreversible non-hormonal agents. They are now being used by large population of women for various reasons. The combined oral contraceptives (COCs) are widely used owing to their effectiveness, safety in years of consecutive use without risk of complications, ease of reversibility, and positive menstrual effects particularly in decreasing menstrual cramps, blood loss and reduction of premenstrual symptoms. They have some limitations because they must be taken daily and are expensive, or do not provide protection against sexually transmitted infections including HIV and have possible side effects including missed periods, breakthrough bleeding, nausea, vomiting, headaches, depression, and decreased libido.

The progestin-only contraceptive pill (POCs) is estrogen-free, and therefore, useful for clients unable to tolerate the estrogen effects of combined oral contraceptives or who have contraindications against taking estrogen-containing contraceptives. The POCs can also be taken during lactation and they appeared to have no harmful effects on blood pressure or on coagulation although the problem of irregular menstruation and taking the medication for more exact

timing of the day may constitute compliance problem to some users.

Persistent symptoms are often alleviated by changing methods; however, no method has been proven superior in terms of adverse effects (Moreau et al., 2007). Oral contraceptives may also present with serious adverse effect that lead to the termination of their uses or change to other forms in a predisposed patients. Such symptoms can involve depression, migraine headache, and weight gain, although these concerns may be one of the reasons why the number of women continuing use of OCPs is only 68 percent at the end of the first year of use. Other categories of symptom cause life threatening adverse effects and can involve increased cardiovascular events, increased breast cancer rates, increased HPV and cervical cancer rates, and an increase in liver tumors, especially in women with concomitant hepatitis infection (La Vecchia and Bossetti, 2009).

Contraceptive barriers include lack of awareness, lack of access, cultural factors, religion, opposition to use by partners or family members, and a fear of health risk and side effects of contraceptive (Carr et al., 2004; Otiode et al., 2001 and Signh et al., 2003).

Injectable agents on the other hand are preferred to oral agents by some patients because of compliance problem as well as not being able to tolerate the oestrogen contents in combined pills. They act to stop ovulation by blocking the luteinising hormone surge and thicken the mucus from the cervix making it difficult for sperm to pass through to reach an unfertilised egg. They also make the lining of the womb thinner, thereby altering the endometrial receptivity for implantation (Allan, 2006). Injectable contraceptives are effective, long acting and reversible. They lack the oestrogen side effects like dyslipidemia and increased risk of heart attack. They can protect against ectopic pregnancies, endometrial cancer, uterine fibroids, ovarian cancer, iron deficiency anaemia, and make seizure less frequent in women with epilepsy or make sickle cell crises less frequent and less painful. However, their Side effects can include weight gain, headaches, mood swings, acne, depression, breast tenderness and irregular bleeding (Centers for Young Women's Health, 2015). The periods of users may become more irregular or longer, or stop altogether (amenorrhoea). They are however contraindicated with a history of heart disease or stroke, thrombosis, liver disease, migraines, breast cancer, diabetes, cirrhosis and those at risk of osteoporosis.

Contraceptives use has reduced endometrial cancer by 50%, ovarian cancer by 40%, and lessen benign breast disease by 30-50%. They have also caused fewer ovarian cysts (variable), fewer menstrual problems, and less salpingitis or pelvic inflammatory diseases by 50-80%. They may cause less progression of rheumatoid arthritis, increased bone density, and probably less endometrial cancers. Reduction in ectopic pregnancy, and protection against artherosclerosis, menstrual disorders; abnormal bleeding by 30-50%), dysmenorrhea by 60%, acne by 50%, colorectal cancer by 40% and endometrial cancer protection by 50% are likely (Dardano and Burkam, 2008).

The objectives of this study were to identify factors relating to choice of the pills or injectable agents and to compare the common adverse effects reported by patients with the view of providing patient-focussed information for patients' counselling and education.

Materials and Method

The study was conducted at the Family Planning Unit of University of Maiduguri Teaching Hospital, Maiduguri, Nigeria. Patients who presented themselves at the family planning clinic were studied. The criteria for inclusion in the study are being regular on oral pills and injectable contraceptives and consenting to take part in the study. Ethical clearance was obtained from the ethics and research committee before the study commenced. The study was carried out using convenience sampling method through administration of questionnaires. The scope of the study includes demographic data like age, occupation, education status, educational level and marital status. Information on reason for choice of agent and adverse drug effects were obtained from patients. The questionnaires were administered in English language but oral interview were

used to clarify the understanding of some patients' with low proficiency in English language. The data were collected over a period of three months in 2015. Descriptive statistics using Statistic Package for Social Sciences (SPSS-version 20) were used to describe the result obtained. Chi square analyses were performed to find the levels of significance difference between two variables.

Results

The distribution of demographic data of patients is shown in Table 1. The age distribution is skewed toward low frequency of higher age range with the mean age and standard deviation of 28.8 ± 5.8 years. The users of contraceptives devices peaked at 25-29 years and those above 40 years constituting the least (5.5%). The proportion of patients who are gainfully employed was 39.0% compared to 61.0% of unemployed patients. Unmarried patients accounted for 27(13.5%) while married and widowed patients are 84.5% and 2.0% respectively.

Table 1: Demographic Characteristics of Patients

Parameter	Variables	Age Range in Years						Total
		18-24 n (%)	25-29 n (%)	30-34 n (%)	35-39 n (%)	40-44 n (%)	≥45 n(%)	N (%)
Gender	Female	52(26.0)	72(36.0)	38(19.0)	27(13.5)	11(5.5)	0(0)	**200(100)**
Occupation	Employed	8(10.3)	26(33.3)	16(20.5)	23(29.5)	5(6.4)	0(0)	78(100)
	Unemployed	44(36.1)	46(37.7)	22(18.0)	4(3.2)	6(4.9)	0(0)	122(100)
	TOTAL	**52**	**72**	**38**	**27**	**11**	**0**	**200**
Marital status	Single	10(37.0)	11(40.7)	5(18.5)	1(3.7)	0(0)	0(0)	27 (13.5)
	Married	42(24.9)	59(34.9)	32(18.9)	25(14.8)	11(6.5)	0(0)	169(84.5)
	Widow	0(0)	2(50.0)	1(25.0)	1(25.0)	0(0)	0(0)	4 (2.0)
	TOTAL	**52**	**72**	**38**	**27**	**11**	**0**	**200**

Users of oral contraceptive accounted for 45.0%. The proportion of users are injectable was 40.0%. Among the oral contraceptive users, 70% of patients are below 30 years while the rest 30% are above 30 years. For injectable users, 55% and 45% of them are below and above 30 years respectively. In general, 52(26.0%), 72(36.0%), 27(13.5%) and 11(5.5%) of patients aged 18-24 years, 25-29 years, 35-39 years and 40-44 years respectively used one form of contraceptive or the other (Table 2).

Table 2: Distribution of Oral Pills and Injectable Contraceptives Users

Contraceptive device	Age Range in Years						**Total**
	18-24 n (%)	25-29 n (%)	30-34 n (%)	35-39 n (%)	40-44 n (%)	≥ 45 n (%)	N (%)
Oral	27(30.0)	36(40.0)	17(18.9)	6(6.7)	4(4.4)	0 (0)	**90(100.0)**
Injectable	21(26.3)	23(28.8)	13(16.3)	17(21.3)	6(7.5)	0 (0)	**80(100.0)**
Others	4(13 3)	13(43 3)	8(32.0)	4(13 3)	1(3.3)	0 (0)	**30(100.0)**
TOTAL	**52(26.0)**	**72(36.0)**	**38(19.0)**	**27(13.5)**	**11(5.5)**	**0** (0)	**200(100)**

The reason for the choice of contraceptive device varies (Table 3). Users of oral pill chose this method because of convenience 48(53.3%), affordability 13(14.4%), compliance 7 (7.7%) and ease of use 22 (24.4%). The corresponding proportions of patients on injectable contraceptives are 56(65.0%), 14(17.5%), 8(10.0%) and 12(15.0%) respectively while the rest accounted for users of other devices. There was however no significant difference (P>0.05) in each of the reason given for choosing any of the two methods. In overall, 100(58.8%), 27(15.9%), 15(8.8%) and 34(20.0%) of patients chose oral and injectable contraceptive device out of convenience, affordability, compliance and ease of use respectively.

Table 3: Patients' Choice and Preference of Contraceptive Device

	Reasons for Choice of Device								Total (%)	
	Convenience n	(%)	Affordability n	(%)	Compliance n	(%)	Ease of use n	(%)	N	(%)
Oral Pills	48	(53.3)	13	(14.4)	7	(7.7)	22	(24.4)	90	(100.0)
Injectable	52	(65.0)	14	(17.5)	8	(10.0)	12	(15.0)	80	(100.0)
Total	**100**	**(58'8)**	**27**	**(15'9)**	**15**	**(8.8)**	**34**	**(20.0)**	**170**	**(100.0)**
P_Values	**P>0.05**		**P>0.05**		**P>0.05**		**P>0.05**			

The adverse effects of contraceptive devices used by patients are presented in Table 4. Headache was reported in 65(38.2%) cases being 36(40.0%) and 29(36.3%) among oral and injectable users respectively; but no significant differences (P>0.05) between the two devices. The experience of nausea and vomiting was significantly different (P<0.005) between the two agents; being 16(17.8%) and 2(2.5%) users of oral and injectable devices respectively. Blood pressure increase was reported by 3(3.3%) of oral pill users. Injectable users who experienced menstrual irregularity was significantly different (P<0.005) from oral pill users; being 10(11.1%) for oral pill users and 24(30.0%) for injectable agents. Similarly, the weight gain observed among 2(2.2%) of pill users and 13(16.3%) of injectable agents was significantly different (P<0.005). No side effects were reported by 22(24.4%) and 12(15.0%) of oral and injectable users respectively.

Table 4: Patients' Reported Adverse Effects of Oral and Injectable Contraceptive Devices

Adverse Effects	Oral Pills n	(%)	Injectable C n	(%)	TOTAL N	(%)	X^2 and P values
Headache	36	(40.0)	29	(36.3)	65	(38.2)	X^2=0.255; P>0.05
Nausea and vomiting	16	(17.8)	2	(2.5)	18	(10.6)	X^2=10.42; P<0.005
Increase blood pressure	3	(3.3)	0	(0)	3	(1.8)	-
Irregular menstruation	10	(11.1)	24	(30.0)	34	(20.0)	X^2=9.45; P<0.005
Increase in weight	2	(2.2)	13	(16.3)	15	(8.8)	X^2=11.69; P<0.005
Vaginal discharge	1	(1.1)	0	(0)	1	(0.6)	-
No reported effects	22	(24.4)	12	(15.0)	34	(20.0)	X^2=1.83; P>0.05
Total	**90**	**(100)**	**80**	**(100)**	**170**	**(100)**	

Discussion

The demographic characteristics of the patients showed that the age distribution is skewed toward low frequency of higher age strata with the mean and standard deviation of 28.8 ± 5.8 years. The predominant users of contraceptive are patients who are in the second half of their third decades of life. Contraceptive users decreased in those above 40 years since this age stratum represents the group who are often not at active reproductive age while no users were observed beyond 44 years since during menopausal periods, menstrual circle may have naturally ceased or decreased. These results are consistent with the work of Isa and Mariga (2012).

The proportions of users of contraceptive devices are higher in those in the unemployed categories compared to those in the employment categories. Users are also higher among the married group compared to the single or unmarried women. Most unmarried or widowed women use contraceptive devices to prevent unwanted pregnancies, although others have used it to prevent pains. Married women employed the techniques for several reasons among which are to plan the family size or to space childbirth as well as to prevent pregnancy so as to be able to cope with the work demand. The low level of use of contraceptives among single women in this study may be attributable to social stigmatization making most single women not to visit public health facilities for their health needs. It is most probable that most single women visit private health facilities for their contraceptive device needs which may imply that such individuals may be ill guided in term of screening and counselling.

The foremost contraceptive methods used in the region are oral pills and injectable depots. Nearly half of the patients use oral pills followed by injectable agents. More than two-third of those using oral pills and injectable are below 30 years of age. Other researchers also find out that women aged 15–29 use more of reversible methods of which COCs are the most popular; and as women get older and complete their families, irreversible methods, particularly are preferred (Mosher and Jones, 2010).

The reason for choice of a particular method differs. But generally, half of the population of users of oral pills and nearly two-third of injectable users made this choice out of convenience. Oral contraceptive pill act by stopping ovulation and inhibit the movement of sperm. Most patients may prefer it because of the advantages it offers. They also appeared to be the method of choice for most single women. Many patients are used to oral medication and with oral contraceptive, stopping the medication at the patients discretion may not be a problems. Many patients may not like the administration of injectable products and others never liked insertion of agents.

Affordability was the reasons given by some patients for being on oral agents particularly when the products have been subsidised by some non-governmental agencies. Only a minority of the oral contraceptives user choice this agent because of compliance suggesting that compliance was not the major reason for users of oral agents. Nearly one-quarter of the users made the choice because of the ease of use. There are other advantages of oral pills that may have made them attractive to some patients. For example, they decreased a woman's risk of cancer of the ovaries and cancer of the lining of the uterus as well as the chances of having benign breast masses. It is well established that OCs provide non-contraceptive benefits, including lowered risks of ovarian carcinoma, endometrial carcinoma, acute pelvic inflammatory disease, fibrocystic disease of the breast, ovarian cysts, ectopic pregnancy, menstrual disorders, and anaemia (Petitti, 2003; Loder et al., 2005). There is also a strong evidence that combined oral pills decreases the risk of heart attack and high cholesterol (Victory et al., 2004) and may not raise the risk of breast cancer (Marchbanks et al., 2002). Pills also significantly decrease menstrual cramps and pain, menstrual blood flow and acne in most women. However the daily administration of the agent and their adverse effects such as nausea, headache, and the depression they cause may not be tolerable to some patients. The OC risks are also well established; especially stroke, venous thromboembolism, and cerebral venous thrombosis (Petitti,

2003) in predisposed patients which may limit their recommendations.

However, close to two-third of women prefer injectable contraceptives since they claimed to be convenient to them. Many patients may find it difficult to take oral pills daily and may have opted for an agent that provides 2 or 3 months contraceptives coverage. Many patients also choose this method in this study because of its affordability, compliance factor and the ease of use. In particular, injectable agent offer privacy as an advantage that attracts most users especially married women. However, the irregular period they cause and the weight gain associated with their usage can deter many users from using them.

A little above one-third of the women on oral contraceptives in this present study reported that they have experienced headache at one point or the other while on the agents. This is not unexpected since the oestrogen content of the combined contraceptive is associated with the adverse effect. In some practice settings, women who could not tolerate this adverse effect are shifted to progestin only contraceptives. Some researchers have reported that general headache is associated with oral contraceptive users (being a hormonal agent) and all other hormonal methods particularly in those women above 35 years (Loder et al., 2005; Moreau et al., 2007). Headache is a side effect that is frequently mentioned as a reason not to begin or continue use of OCs (Herold and Godwin, 1980; Rosenberg and Waugh, 1998). According to Sulak et al (2000), headache is consistently high among the top two or three symptoms reported during the pill-free week. Machado et al (2010) reported a case of 8.5% cases of first episode of headache in Brasil while Bachmann et al (2004) reported cases of 6.5%. About 8.8% cases were reported by Brill et al (1990). As high as 36% headaches cases have been reported at baseline in some study (Ernst et al., 2002). Headache has made some patients to withdraw from oral contraceptive use. According to Carr and DelConte (2002), about 2% cases of women who withdraw from oral contraceptive were attributable to the presence of headache as adverse effect. The reason for the variation of these cases from our study can be attributed to the fact that most of the headache cases may not be exclusively treatment related and baseline headache information could not be obtained from the patients.

Headache was similarly reported among the injectable users in this study. This is consistent with most hormonal contraceptives devices. Headache can occur as a new symptom and can increase in severity in most patients. It can also increase in frequency among the users as duration of use increases. In Egypt, as high as 15.0% and 19.7% cases of headache was reported by Salem et al (1988) at 1 years period of users of two different injectable contraceptive agents while as low as 5% has been reported in Turkey. These results are lowered than obtained in this study although our study was not randomized.

Nausea and vomiting is a common adverse effect with most medications. Nausea and vomiting as an adverse effect is higher among oral contraceptives women users above other agents. Generally, combined pills are known to cause nausea in some users (Moreau et al., 2007) and do not depend on the type of pills but when emergency contraceptive method is combined with oral combined pills, the incidence of nausea may increase. Norgestrel-only emergency pills however produce less nausea when compared with combined oral pills. The World Health Organization advises pre-treatment for women who have a history of nausea and vomiting with emergency contraceptive use (WHO, 2004). Although a few proportion of patients reported nausea with the use of injectable, it could not be confirmed if these claims are associated to these contraceptive devices.

High blood pressure is another adverse effects commonly reported among the contraceptive users. A minority of patients in in this study reported a slight increase in blood pressure. However, no information regarding their baseline blood pressure status at the time of starting the contraceptive device. The incidence of high blood pressure has been generally reported among 5% cases of women in high doses of oral pills and also low cases of those on low contents of oral pills (Wilson et al., 1984). The mechanism of oral contraceptives induced hypertension is unknown but Renin-

angiotensin system has been implicated as some studies have identified high level of angiotensinogen in users of high doses of oral contraceptives (Woods, 1988).

Menstrual irregularity or menstrual cycle disorder is reported among contraceptives users particularly those of hormonal agents and has been the cause of contraceptives discontinuation with some patients (Moreau et al., 2007a). These irregularities range from breakthrough bleeding, decreased menses, spotting, missed period, to prolonged or delayed periods etc. Many patients in this study similarly reported this side effect in both the oral and injectable agents' users. Some studies have however reported that the injectable agent has more incidences of missed menstrual period and prolonged bleeding than the non-hormonal agents (Berenson et al., 2008). The degree of these irregularities varies among women depending on the contents of the agent used but progestin-only pills and low dose of combined pills are known to produce higher incidences of bleeding disorders (Moreau et al., 2007; Gallo et al., 2008).

Weight gain was reported to occur mostly among injectable users in this study and no case of weight gain was reported among the oral pill users. This claim could not be verified since the baseline weights were not ascertained. Some authors however reported that long term use of injectable agents have caused weight gain in some patients (Berenson et al., 2008; Berenson and Rahman, 2009). Similarly, there were also no reported cases of loss in sexual activities or of libido among the pill and injectable users.

It is concluded that many factors like convenience, affordability and compliances influenced the preference in the choice of oral contraceptive pills and injectable contraceptive devices. Several similar adverse effects were reported but headaches, nausea and vomiting and changes in blood pressure were reported higher among oral contraceptives users compared to injectable users while the reverse was the case with effects like menstrual irregularity and weight gain. This study underscores the need for close monitoring, patients' education and counselling during pharmaceutical care services to patients on contraceptive devices as well as adequately informed patients on expected outcome.

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