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Original Research Article

Effects of the use of contraceptives: a case of women in the Greater Accra and Ashanti regions of Ghana

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ABSTRACT

Background: Contraceptive use during a woman's reproductive years can help prevent unintended pregnancies, maternal deaths, and other non-reproductive problems. However, there is also a risk of running into various health challenges. The study aimed at finding out if women in the Greater Accra and Ashanti regions of Ghana encounter health issues during and after use of contraceptives was conducted.
Methods: Questionnaires were administered to 600 women out of which 401 responses were carefully gleaned for analysis using SPSS version 25. The questionnaire probed side and adverse effects women encountered in their use of contraceptives as well as the types of contraceptives they preferred.
Results: The study revealed that the use of contraceptives was widely prevalent, especially amongst women aged 21-30 years (61.8%). The preferred types of contraceptives were the oral-progestin only (42.9%) and combined oral contraceptives (31.4%). Spotting or bleeding between periods (menstrual-related) was the highest reported side effect (33.2%), followed by weight gain (metabolic-related), 21.7%. Pearson's Chi squared test showed an association between the age of respondents and the choice of contraceptive type at $p<0.01$. Hypertension and deep vein thrombosis (DVT) were the highest reported adverse effect (10.2% and 9.2% respectively).
Conclusions: It was concluded that contraceptive use (especially the oral type) may cause discomfort with the side effects reported in women of reproductive age and it may be a contributing factor to other health conditions in susceptible women.

Keywords: Side-effects, Adverse effects, DVT, Uterine fibroids, Hypertension, Combined oral contraceptives, Oral-progestin only contraceptives

INTRODUCTION

Contraceptive methods may be used for reasons such as women wanting to space out their children to women wanting to enjoy sex without the burden or worry of unwanted pregnancy.[1] Contraception is the use of drugs, devices, or surgery to prevent pregnancy.[2] Contraceptives have been classified as very effective (0-0.9 pregnancies per 100 women), effective (1-9 pregnancies per 100 women), moderately effective (10-19 pregnancies per 100 women), and less effective (20 or more pregnancies per 100 women). Examples of the very effective methods commonly used are male and female sterilization, intrauterine devices, copper and levonorgestrel containing and implants.[2,3] Examples of effective methods are combined contraceptives oral and injectables, progestin-only orals and injectables, combined contraceptive vaginal ring and lactational amenorrhea (LAM). Examples of moderately effective methods are male condoms and the standard days' method (calendar method). One less effective method is the female condom. These methods have different mechanisms of action and effectiveness in preventing unintended pregnancy.[2,3]

Using emergency contraception (EC) that only contains levonorgestrel prevents fertilization by inhibiting ovulation. Reviewing levonorgestrel EC mode of action and evaluating evidence for a postovulatory impact on viable pregnancy development in exposed and succeeding cycles have been a bone of contention, meanwhile, contraceptive usage during a woman's reproductive years can help prevent unintended pregnancies, maternal deaths, and other non-reproductive problems.[4-6] Side effects such as nausea, vomiting, dizziness, headache, and breast tenderness have been reported, however, they are not in comparison to each other, as to which side effects are reported most.[7] Stroke and cancer have been reported as adverse events for levonorgestrel.[8]

In addition, the use of contraceptives has been related to pulmonary embolism and stroke, both of which have substantial mortality rates.[9]

Contraceptive methods excluding the LAM and calendar method are widely used and accepted because of the quest for effective birth control to help space children in career women.[10] Thus, this study aimed to find out if women in the greater Accra and Ashanti regions of Ghana encounter health issues as has been identified in extant literature, during and after the use of such contraceptives. The study also sought to compare extent of side effects and adverse effects about different types of contraceptives available.

METHODS

Study design

This is a descriptive study which uses a questionnaire to assess the prevalence of health issues during and after use of different types of contraceptives in selected populace.

Study area

Research was conducted in greater Accra, capital city of Ghana, and Kumasi metropolis centrally located in the Ashanti region of Ghana. Greater Accra region has smallest area of 16 administrative regions in Ghana, occupying a total land surface of 3,245 km^2. However, it is the most populated, with about 5.45 million. Kumasi is second largest city in Ghana and the administrative capital of Ashanti region. It is fast-growing metropolis with an estimated population of about 5.44 million.

Inclusion and exclusion criteria

This study included all women between 15-50 years. This implies that women under fifteen years old were excluded from the study. Women who were not willing to take part in study were respected as such.

Ethical consideration

Ethical clearance was sought from the ethical clearance department of the Kumasi technical university (IRID). respondents were informed of their right to decline to participate in this research.

Sampling

The study used a convenient sampling method where questionnaires were answered by women from different social backgrounds. The questionnaire consisted of both close-ended and open-ended questions which were made available through Google forms. Others were administered by data collectors.

Data analysis

Statistical package for social sciences (SPSS), version 25 was used to analyse the data gathered.

RESULTS

Demographics

Contraceptives were more patronised in women of the age group 21-30 years, comprising 61.8%, with senior high school as their highest educational level (41.6%). Oral-progestin only and combined oral contraceptives are the preferred types, 42.9% and 31.4% respectively. The respondents have some knowledge about how contraceptives work and their long-term effects (Table 1).

Table 1: Demographics.

Characteristic		N	Percentage (%)
Age (in years)	15-20	30	7.5
	21-30	248	61.8
	31-40	110	27.4
	41-50	12	3
Education	Junior high school	34	8.5
	Senior high school	167	41.6
	Tertiary-first degree	133	33.2
	Tertiary-masters	46	11.5
No. of years of contraceptive use	1-5	297	74.1
	6-10	67	16.7
	11-15	20	5
	Above 20	12	2.9
Type of contraceptive	Oral-progestin only	172	42.9
	Combined oral contraceptive	126	31.4
	Barrier-condom	36	9
	IUD	29	7.2
	Implants	14	3.5
	Injectables-short term	12	3
	Oral-oestrogen only	11	2.7

Side effects experienced with the different types of contraceptives

Amongst the side effects that were reported are headache, nausea, decreased sex drive, weight gain, weight loss, breast tenderness, irregular menstrual cycle, spotting or bleeding within periods, abdominal cramping and increased vaginal discharge. The findings indicate that 27.3% of respondents in the oral-estrogen-only group reported the most headaches. Nausea was highly reported in the oral-progestin-only group (22.1%). Decreased sex drive was highly reported in the injectable short-term group (41.7%). Weight gain was highly reported in the COC group (Table 2). Additionally, spotting or bleeding within periods was the most reported side effect, 33.2% (Table 3).

A boxplot of the number of side effects against the type of contraceptive also revealed that a greater number of side effects per respondent were reported amongst the IUD, short-term injectables and the implant groups (Figure 1).

Adverse effects experienced with the different types of contraceptives used

Some adverse effects were considered in the questionnaire. The respondents were to indicate a "yes" or "no". DVT was also highly reported in the COC group, closely followed by the oral-progestin only. Hypertension was also high in the COC group (Table 4). Also, the commonest adverse effects overall, were hypertension and DVT, 10.25% and 9.5% respectively amongst the respondents (Table 5).

To examine the relationship between the age of women and the choice of the type of contraceptive.

Cross-tabulation and chi-square analysis were done. The choice of type of using the age groups and type of contraceptive as variable. Findings indicate that the type of contraceptive differed statistically significantly by age group (28, n=401), $p<0.01$, Cramer's v=0.573). This means that the age of a woman influences the type of contraceptive they select for use.

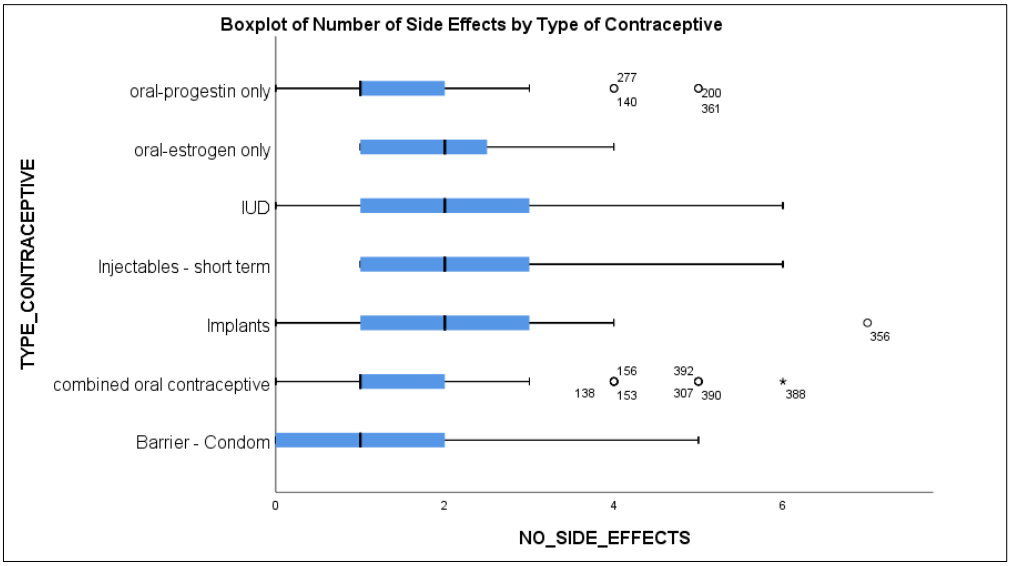

Figure 1: A boxplot of number of side effects reported per respondent against various types of contraceptives.

Table 2: Percentage of side effects reported amongst respondents within various types of contraceptives.

Variables	OP only, n=172		OE only, n=11		COC, n=126		IUD, n=29		IST, n=12		Implants, n=14	
	N	%	N	%	N	%	N	%	N	%	N	%
Headache	40	23.30	3	27.30	29	23.00	5	17.20	2	16.70	3	21.40
Nausea	38	22.10	1	9.10	23	18.30	1	3.40	2	16.70	1	7.10
DSD	9	5.20	0	0.00	24	19.00	5	17.20	5	41.70	5	35.70
BT	12	7.00	3	27.30	23	18.30	7	24.10	1	8.30	4	28.60
WG	19	11.00	1	9.10	43	34.10	9	31.00	2	16.70	4	28.60
S/B	70	40.70	2	18.20	30	23.80	16	55.20	4	33.30	10	71.40
IVD	9	5.20	1	9.10	1	0.80	7	24.10	3	25.00	2	14.30
AC	9	5.20	4	36.40	6	4.80	17	58.60	3	25.00	2	14.30

Note: OP-Oral-progestin only, OE-Oral-estrogen only, COC-Combined oral contraceptives, IUD-Intrauterine devices, IST-Injectable short-term, BC-Barrier-condom, DSD-Decreased sex drive, BT-Breast tenderness, WG-Weight gain, S/B-Spotting or bleeding within periods, IVD-Increased vaginal discharge, AC-abdominal cramping.

Table 3: Side effects percentages in the total sample of respondents.

Side effect/ type of contraceptive	OP only	OE only	COC	IUD	IST	Implants	BC	Total	Percent in total (%)
Headache	40	3	29	5	2	3	0	82	20.4
Nausea	38	1	23	1	2	1	0	66	16.5
DSD	9	0	24	5	5	5	4	57	14.2
BT	12	3	23	7	1	4	0	51	12.7
WG	19	1	43	9	2	4	0	87	21.7
S/B	70	2	30	16	4	10	1	133	33.2
IVD	9	1	1	7	3	2	1	24	6.0
AC	9	4	6	17	3	2	1	42	10.5

Note: OP-Oral-progestin only, OE-Oral-estrogen only, COC-Combined oral contraceptives, IUD-Intrauterine devices, IST-Injectable short-term, BC-Barrier-condom, DSD-Decreased sex drive, BT-Breast tenderness, WG-Weight gain, S/B-Spotting or bleeding within periods, IVD-Increased vaginal discharge, AC-abdominal cramping.

Table 4: Percentages of adverse effects reported by respondents amongst various types of contraceptives groups.

Variables	OP only, n=172		OE only, n=11		COC, n=126		IUD, n=29		IST, n=12		Implants, n=14	
Total users	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
DVT	21	12.2	0	0.0	17	13.5	0	0.0	0	0.0	0	0.0
Heart attack	4	2.3	0	0.0	3	2.4	0	0.0	0	0.0	0	0.0
Fibroids	5	2.9	0	0.0	14	11.1	2	6.9	2	16.7	3	21.4
Cervical cancer	4	2.3	0	0.0	6	4.8	0	0.0	0	0.0	0	0.0
Hypertension	11	6.4	1	9.1	27	21.4	0	0.0	2	16.7	0	0.0
Diabetes	2	1.2	0	0.0	3	2.4	0	0.0	0	0.0	0	0.0

Note: OP-Oral-progestin only, OE-Oral-estrogen only, COC-Combined oral contraceptives, IUD-Intrauterine devices, IST-Injectable short-term, BC-Barrier-condom, DVT-Deep vein thrombosis.

Table 5: Adverse effects percentages in the total sample of respondents.

Variables	OP only	OE only	COC	IUD	IST	Implants	BC	Total	Percent in total (%)
DVT	21	0	17	0	0	0	0	38	9.5
Heart attack	4	0	3	0	0	0	0	7	1.7
Stroke	3	0	0	0	0	0	0	3	0.7
Fibroids	5	0	14	2	2	3	4	30	7.5
Cervical cancer	4	0	6	0	0	0	0	10	2.5
Hypertension	11	1	27	0	2	0	1	41	10.2
Diabetes	2	0	3	0	0	0	1	7	1.7

Note: OP-Oral-progestin only, OE-Oral-estrogen only, COC-Combined oral contraceptives, IUD-Intrauterine devices, IST- Injectable short-term, BC-Barrier-condom, DVT-Deep vein thrombosis.

DISCUSSION

In the study, the preferred type of contraceptive was oral-progestin only, as out of the 401 respondents, 172 women chose this type of contraceptive, comprising 42.9% of the total as shown in Table 1. The findings indicate that 27.3% of respondents in the oral-estrogen-only group reported the most headaches. Nausea was highly reported in the oral-progestin-only group (22.1%). Decreased sex drive was highly reported in the Injectable short-term group (41.7%). Weight gain was highly reported in the COC group (Table 2). Additionally, spotting or bleeding within periods was the most reported side effect, 33.2% (Table 3). It was also revealed that a greater number of side effects per respondent were reported amongst the IUD, Short-term injectables and implant groups (Figure 1). DVT was also highly reported in the COC group, closely followed by the oral-progestin only. The hypertension was also high in the COC group (Table 4). Also, the commonest adverse effects overall, were hypertension and DVT, 10.25% and 9.5% respectively amongst the respondents (Table 5).

The emergency contraceptives which are patronised mostly among the youth, contain progestin-only steroids such as levonorgestrel.[11] There is ease of application and access. There is no invasion as with the injectables or IUDs. The combined oral contraceptives, although inconvenient due to the daily dosing, is the second preferred in the study although other studies cite it as the most preferred.[12] This may not be directly tied to the

effectiveness of this type of contraceptive but rather its availability and cost-effectiveness.

The side effects such as nausea vomiting, dizziness, headache, and breast tenderness have been reported, however, not in comparison to each other, as to which side effects are reported most and within which contraceptive group.[7] In this study, comparisons have been made. Headache, nausea, and decreased sex drive have been classified under central nervous system (CNS)-related side effects; a greater percentage of respondents are likely to experience headaches with estrogen-only than oral-progestin only (Table 2). Headaches are a very common condition that people experience many times during their lives. They are the most common form of pain and a major reason cited for days missed at work or school, as well as visits to healthcare providers.[13] It has principally been relegated to the head as pain is experienced in the head and face areas of the body, hence, CNS-related. Many women report headaches as a common side effect of hormonal contraceptives.[12,14] This is confirmed in this study as 20.4% of respondents reported headaches. Nausea is also a reported side effect of emergency contraceptives.[15] Changes in hormonal balance that are elicited by these contraceptives trigger the chemoreceptor trigger zone in the brainstem leading to such side effects as nausea and vomiting.[16] As evidenced in pregnancies when progesterone is high, continuous use of these contraceptives does likewise, 22.1% of oral progestin users were the highest. Although it was reported in the other types of contraceptives totalling 16.5% amongst the whole sample of respondents. Respondents seem to experience nausea and decreased sex drive more with the oral-progestin only and the combined oral contraceptives. Breast tenderness, weight loss and weight gain were classified under metabolic-related side effects. Weight gain is a known side effect of combination hormonal contraceptives, and many women and clinicians believe that an association exists.[17,18] It was realized in the findings that weight gain is more predominant with the combined oral contraceptives in this study too (34.10%), closely followed by 31% of IUD users. Implants as well as the IUDs cause a greater degree of spotting within period, increased vaginal discharge and abdominal cramping than the oral contraceptives in the study.[19] These are classified as menstrual-related side effects. Overall, spotting and bleeding between periods was the most common side effect amongst the 401 respondents and this is expected.[20,21]

Hypertension and DVT were the highly reported adverse effects (10.2% and 9.5% respectively) of the adverse effects. These are also notable adverse effects, especially with combined oral contraceptives.[22,23] Additionally, for this study, the prevalence in COCs was closely rivalled by that in oral-progestin only (12.2%), that of the COCs being 13.5%. Uterine fibroid reports were also noteworthy (7.5%). Stroke and cancer have been reported as adverse events for levonorgestrel and COCs.[8,11] These effects are evident because steroidal products can antagonize the role of natural steroids like cortisol in the human body which has a role to play in hypertension and the regulation of sugars in the blood.[24]

There is a lack of monitoring systems as also identified in the research by Pillay Diantha and few channels for reporting of these untoward effects.[25]

Discrepancies

It must however be noted that the researchers did not take into consideration the concomitant use of other medicines by these respondents. The number of years of use may not be a continuous use of these contraceptives as quite a huge percentage preferred to use rarely or only when necessary. Failure rates of the different types of contraceptives were also not considered in this study.

CONCLUSION

Contraceptive use may be a cause of discomfort with the side effects reported in women of reproductive age. Additionally, it may be a contributing factor to other health conditions in susceptible women.

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