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Chapter

Use of Birth Control Products and Contraceptives by Adult Males: A Case Study of the Amasaman Area Council, Accra, Ghana

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Abstract

The study analyzed adult males' use of birth control products and contraceptives in an heterogenous community in Accra using a scientific random sampling survey of 300 persons from 39 rural, semi-rural and urban communities. The results of the analysis indicated that the respondents had no external sources of information with regards to the majority of the nine identified birth control products and contraceptives. Peers and friends were the major source of information about these products. The likelihood of using these products was significantly influenced by the extent of awareness of their availability. Increasing level of awareness of birth control products and contraceptives for men with lower levels of formal educational attainment led to their increased likelihood of using these products suggesting the important role of information about these products to socially-disadvantaged groups of people, Ever use (both present and past use) of birth control products and contraceptives was shown to be linked to higher economic welfare of respondents, particularly for men with higher family sizes.

Keywords: birth control products, contraception, family planning, Ghana, male contraceptive use, reproductive health

1. Introduction

1.1 Background

The role of men in the acceptance of reproductive health (RH) policies and the use of birth control (BC) products and contraceptives has received scant attention in the empirical literature. This scant attention on the role of men in RH care and delivery is surprising given the important role of men in heterogeneous sexual relationships which are the source of pregnancies. While women have limited biological carrying capacity in producing children, men can produce a very large number of children based on having sex with as many women as they can find for sexual relationships.

Several research workers such as Starbird et al. [1], Kriel et al. [2] and Gopal et al. [3] have drawn attention to the limited role of men incorporated in various State and

Community RH initiatives and the need to incorporate men into RH emerging programs. Men are important actors who influence both positively and negatively, the RH outcomes of society, especially those dealing with children and women. The ongoing challenge to the development and implementation of RH policies and programs is how to incorporate the role of men in family planning initiatives and the influences of men in the areas which impact the health of children and women.

The 1994 Cairo International Conference on Population Development (ICPD) Program of Action called for the inclusion of men in RH programs [4]. An underlying driver of the limited role assigned to males in the development of RH policies is the common equalization of gender with women. The exclusion of men in RH policies does not allow for the analysis and inclusion of the considerable interactions of gender with other important political economy variables such as ethnicity, race, and connections to power structures using both income and non-income measures of human well-being.

1.2 Problem statement

Ghana is an English-speaking Republic located in the western part of Africa. It gained its political independence from Great Britain on 6 March 1957 after it had been a colony for 113 years with the emergence of colonial rule in 1844 [5]. The country is classified as a lower-middle-income country with recorded per capita income of 2353 United States dollars in 2022 [6]. The population of Ghana was recorded as 30.8 million during the July 2021 national population and housing census [7]. This population is currently growing at the rate of 2.1% annually [7]. The high population growth rate imposes negative socio-economic outcomes on the country including poor sanitation and frequent occurrences of many acute diseases. Given that the population doubles every 33 years [7], there is a need for policy makers to formulate effective RH policies based on scientific evidence.

While Ghana has achieved relatively high growth rate of about five percent per year as indicated by the annual change in the gross domestic product (GDP), over the three decades of constitutional governance [8], the country is bedeviled with serious environmental-related problems which are directly linked to rapid growth of the human population [9]. These problems include extensive destruction of water bodies through illegal mining activities, rapid deforestation, among the highest in the world, and poor environmental sanitation. Another worrisome social issue is the rapidly growing national income inequality, considered to be one of the fastest growing in Africa over the last three decades [9, 10].

This research study is particularly motivated by the need to close the knowledge gaps generated from the widespread omission of men in various RH studies and also the need to ascertain the effects of culture and education on the welfare of men using BC products and contraceptives. Hence, the approach of this researcher is to establish relationships between the acceptance and use of BC products and contraceptives (dependent variable) and independent variables related to social factors such as culture and education. Given that the acceptance and use of BC products and contraceptives is influenced by the various stages of the life cycle of a human being, the Life Cycle Theory originally developed by Professor Modiglani in 1957 [11] is the analytical lens used to develop research questions.

In the reviewed literature, men were not the major focus on RH discussion. Several scholars have described this trend as worrying as males are usually ascribed the

responsibilities of ensuring that family planning (FP) and RH concerns are addressed in the family [12]. In addition, national population advisory councils in many countries prioritize women in FP and RH policy formulation [13]. In developing framework for a new reproductive health paradigm, researchers have drawn attention to the absence of men from previous reproductive health initiatives and the need to incorporate men into emerging programs [14].

In light of the previous discussion, the objectives of this study were to ascertain the types of BC products and contraceptives used by adult males and to establish the factors influencing the use of these products by adult males in the Amasaman Area Council of Accra, the capital city of Ghana. Further, the linkage between the ever-use (past or current use) of these products on the welfare of the adult male respondents was analyzed using statistical analysis.

The rest of this paper is organized as follows: the next section is devoted to a summary of the review of the literature on the subject. The next section is reserved for the discussion of the methods and procedures used for the study. These include the survey administration procedures used to randomly select adult male responses and a discussion of the statistical procedures used to analyze the data. The results of the study are presented next followed by the conclusions and the list of cited references.

2. Literature review

2.1 Introduction to reproductive health and use of birth control products

Reproductive health care is the provision of basic cost-effective health services. Health services cover health promotion, prevention and maternal core issues such as safe motherhood, adolescent reproductive health. Critical to the attainment of good RH attainment and maintenance is the good quality of health services and systems in a nation state.

Over the past four decades, there has been increasing recognition that good reproductive health care could result in personal economic and social welfare of an individual (for example, refer to [3]). Despite the importance of RH decisions and practices, it is only recently that researchers have started to deeply consider RH as a key tool in advancing economic and social welfare of individuals and reducing poverty. Effective RH policies are important tools for the attainment of the 2030 Sustainable Development Goals of the United Nations for which member countries have agreed upon.

2.2 Factors influencing the use of BC products and contraceptives

The reviewed literature indicates that there are several socio-economic and cultural factors which are responsible for the use of BC products and contraceptives. These factors include marital status, formal educational attainment, culture and awareness of these products. Marital status influences the use of contraceptives among people.

Sedgh et al. [15] suggested that that the individual marital status was an important factor influencing his/her use of BC products and contraceptives. However, culture, religion and other socio-demographic factors, such as age and educational attainment, were also important drivers of the use of contraceptives.

Education and one's educational level have a relationship with contraceptive use. Women with higher levels of education are able to make better and informed decisions regarding contraceptives [16].

Cultural factors are cited reasons for the low levels of acceptance and use of reproductive health and family planning services in many countries arising from the pro-natural beliefs of adherents of religious faiths such as Islam and Roman Catholic Christianity (for example, refer to [17]). The location of a person and his/her adoption and use of BC products has been reported in the literature (Hawkes and Hart [18]). Persons living in urban localities tend to use BC products more intensively than those in rural localities arising from the relatively higher levels of education and incomes of the latter group of people. Further, access to these products tends to be relatively limited in rural areas.

Awareness of BC products and contraceptives has been shown to be a major factor driving the uptake of these products in parts of the developing world [19]. The important role of the mass media in disseminating information about BC products is weaker in rural areas of many developing countries due to the limited access of rural people to electricity and related infrastructural facilities.

3. Methodology and procedures used in the study

3.1 Survey methods and administration

The survey of adult males was undertaken in the Amasaman Area Council in the Greater Accra Region of Ghana. It involved randomly selected males who were 18 years of age and above. The period of the survey was November and December 2019. Random sampling procedures which involved confidential interviews were used to elicit information from adult householders who were male from all 39 communities of the Amasaman Area Council. Using statistical theory and concepts indicated by scholars (e.g., refer to [20–22]), the optimal sample size was determined as 292. The previous pilot survey conducted earlier in June 2019 confirmed that the probability of an adult male being aware of at least one BC product was 0.95. Given that the research allowed for 0.025 maximum standard error (MSE) to be achieved with 95 percent confidence level (that is 1.96 standard errors from a normal distribution), 292 was derived as the optimal sample size. This sample size was increased to 300 leading to an oversampling of eight respondents.

3.2 Model of use of BC products and contraceptives

A binary logit regression analysis was undertaken to determine socio-economic characteristics of the male respondents that significantly influenced the decision to currently use any of the nine identified BC products and contraceptives. The binary logit model is discussed by Gujarati [23]. The specific model used in this study was as follows:

$$LOG(PROBUSEBCP/(1 - PROBUSEBCP)) = f(MALEAGE, \ MALEEDU,$$
$$SPOUSEEDU, \ MALEEDU * SPOUSEEDU, \ PINCOMEM, \quad\quad (1)$$
$$BCPAWARENESS, \ BCPAWARENESS * MALEEDU)$$

where PROBUSEBCP was the dependent variable expressing the probability of the male respondent currently using one or more of the nine identified BC products and contraceptives.

MALEAGE was the age of the male householder.

MALEEDU was the level of formal educational attainment of the householder in years.

SPOUSEDU was the level of formal educational attainment of the male householder's spouse.

MALEEDU*SPOUSEEDU was the interaction variable combining MALEEDU and SPOUSEEDU.

PINCOMEM was the average income of the male householder per month.

BCPAWARENESS was the average degree of awareness indicated by the male householder for each of the nine BC products and contraceptives. The Likert scale was used for the assessment of the degree of awareness with zero indicating total lack of awareness, and 5 for the highest level of awareness.

BCPAWARENESS*MALEEDU.

Eq. 2 represents the specific model used for the analysis and was based on the dependent variable being the natural logarithm of the odds ratio of the respondent using any one of the nine BC products:

$\text{LOG (PROBUSEBCP)}/(1 - \text{PROBUSEBCP})$.

$$\begin{aligned} \text{LOG(PROBUSEBCP)}/(1 - \text{PROBUSEBCP}) \\ = A_0 + A_1\,\text{MALEAGE} + A_2\,\text{MALEEDU} + A_3\,\text{SPOUSEEDU} \\ + A_4\,\text{MALEEDU}^*\text{SPOUSEEDU} + A_5\,\text{PINCOMEM} + A_6\,\text{BCPWARENESS} \\ + A_7\,\text{BCPAWARENESS}^*\text{MALEEDU} + U \end{aligned}$$

(2)

Where A_i (i = 0, 1, 2, 3, 4, 5, 6 and 7) are the parameters and U is the equation error term.

3.3 Model linking economic welfare of male respondents and their ever-use of BC products

A multiple regression model analysis was used to ascertain the relationship between personal empowerment, indicated by personal income adjusted for by household size, and the use of birth control methods and other socio-economic characteristics of the 300 male respondents (household heads). The model used is specified as Eq. (3) below:

$$\begin{aligned} \text{LPINCOMEM} = E_0 + E_1\,\text{MALEAGE} + E_2\,\text{MALEAGESQUARED} \qquad (3) \\ + E_3\,\text{MALEEDUSSS} + E_4\,\text{CUMARRIED} + E_5\,\text{ISLAMREL} \\ + E_6\,\text{HSIZELARGE} + E_7\,\text{EVERUSEDBCP} \\ + E_8\,\text{HSIZELARGE}^*\text{EVERUSEDBCP} + Z_i \end{aligned}$$

where LPINCOMEM was the natural logarithm of the average income earned by the householder per month, adjusted for by the size of his household (HHSIZE), to

derive adult-equivalent income. This adjusted household size (λ derivation was based on the equation $\lambda = (HHSIZE)^\sigma$ with σ being the scale parameter. The scale parameter used was 0.70 similar to the work of Buse & Salathe [24].

AGE is the age of the male respondent in years.

MALEAGESQUARED is the square of MALEAGE. This variable is incorporated in the model to examine the possibility of a curvilinear relationship between economic welfare of the male respondent and his age over time; this specification is driven by the life cycle theory employed for this study. Hence, the linear versions are used for the analysis.

MALEEDUSSS is a dummy variable with the value 1 for male respondents who completed senior secondary school or its equivalent and zero otherwise. Rather than using formal educational attainment (MALEEDU), the use of MALEEDUSSS dummy variable was due to the fact that MALEEDU was directly related to the use of BC products. MALEEDUSSS therefore served as an instrumental variable for MALEEDU to avoid the problem of endogeneity in the regression model.

ISLAMRELIGION is a dummy variable taking the value of 1 if the male respondent is a Muslim and zero if the respondent is not a Muslim.

CUMARRIED is a dummy variable taking the value of 1 if the male respondent was married at the time of the survey in November/December 2019, and zero if the respondent was not married at that time.

HSIZELARGE is a dummy variable with a value of 1 if the nominal household size is three or more, and zero if the nominal household size is less than three (that is single-person family or two-person family). The choice of three as the threshold household size was based on a numerical simulation analysis of household sizes from 1 to 17.

EVERUSEDBCP carried a value of 1 if the male respondent had ever used BC products during his lifetime. It took a value of zero if the respondent had never used any BC products in his lifetime.

HHSIZELARGE*EVERUSEDBCP is an interaction term between the two variables, HHSIZELARGE and EVERUSEDBCP, that evaluates the effect of the use of BC products in larger-sized households of three or more on the economic welfare of the male respondent. Larger-sized households used in this study indicate that the household has an adult male with a spouse and at least one dependent.

E_i (where i = 0,1,2,3,4,5,6 and 7) are parameters to be estimated; and Z is the equation error term, initially assumed to have zero mean and constant variance.

4. Results

The socio-economic characteristics of these 300 respondents, based on frequency analysis, are presented in **Table 1**. The age range of the respondents was between 20 and 69. However, the dominant age group of the respondents was the 30 to 49 years group; this group had about three-quarters of all the respondents (77.7%). The vast majority of the respondents has some formal schooling with only 4.6% never attending school. About two-thirds of the respondents were formally married (66.9%) while about one quarter were in various cohabitation arrangements with partners ((26.2%).

In terms of religious affiliation, Christianity was declared as the dominant religion with over three-quarters (76.8%) of the respondents indicating this religion as their preference. Following Christianity, the most popular religious affiliation was traditional African religions, either in their sole forms or mixed with Christianity or Islam;

Item/ group	Percentage (%)
Age group	
20–29	18.2
30–39	54.3
40–49	25.2
50–59	2.0
60–69	0.3
Educational level	
No schooling	4.6
Primary school	3.6
Junior high school/Middle School	19.9
Some senior high school	13.9
Senior high school graduate	18.2
Post-junior high school technical school	0.0
Technical college/school	19.2
Higher National Diploma Holder	13.2
Diploma	5.6
Bachelor degree holder	1.0
Postgraduate degree holder	0.7
Religious Affiliation	
Christian Protestant	36.4
Christian Roman Catholic	23.8
Christian Charismatic or Pentecostal	14.9
Christian Jehovah Witnesses	0.0
Christian/African traditionalist	7.3
Islam	7.3
Islam/African traditionalist	2.3
Traditional African religions adherents	4.6
Atheist	0.7
Buddhism	0.7
Hare Krishna	0.3
Ethnicity (Broad Ethnic Group)	
Akan	20.5
Dangme/Ga	17.5
Ewe	31.8
Guan	12.6
Gurma	6.0
Mole-Dagbani	3.6
Grusi	2.7
Mande	0.6
All Other groups	2.3
Occupation	
Self- employed/own business	29.1
Private sector employee	20.9
Government sector employee	7.3
Artisans	30.1
Farmers	11.6
Unemployed	1.0
Marital Status	
Currently Married	66.9
Cohabitation	26.2
Divorced	3.3

Item/ group	Percentage (%)
Widowed	1.3
Single	2.4
Membership of Community Associations, Groups and Organizations	
No association	0.0
Political Parties	56.9
Men Fellowship (Christian)	10.6
Islamic Brotherhood/Political Parties	7.6
Men Fellowship/Political Parties	22.2
Current Use of Birth Control Methods (Within the Last 12 Months Before Survey)	
Yes	13.9
No	86.1
Past Use of Birth Control Methods (Beyond the Last 12 Months Prior to the Survey)	
Yes	14.9
No	85.1
Current Use of Birth Control Methods by the Spouse of the Respondent (Within the Last 12 Months Before Survey)	
Yes	19.2
No	46.7
Respondent Does Not Know	34.1

Source: Data from survey undertaken in November and December 2019.

Table 1.
Characteristics of the male survey respondents based on frequency analysis.

this mixed preference was indicated by about one in seven of the respondents (14.2%). Ghana has nine broad ethnic groups. The largest ethnic group among the respondents was Ewe. The second largest group was Akan and this was followed by Dangme/Ga groups.

In terms of employment, artisans were the largest group followed by self-employed people from other categories and then by private sector employees, farmers and government sector employees. With regards to the use of BC products, about one in seven of the respondents (13.9%) had used these products during the 12 months before the start of the survey. This proportion was slightly smaller than the proportion of the respondents who had used these products during past periods (14.9%).

Table 2 represents the summary socio-economic characteristics in terms of average or mean figures. The average age was 35.6 years, ranging from 22 to 60 years. The number of years of formal schooling acquired was 11.0 years. The average number of people living in a household was 6.0 and the average number of children was 3.8, 2.1 male children and 1.7 female children. The average monthly income received by the adult male was about 499 Ghana cedis during the year, 2019. Given that one United States dollar was worth on average 5.22 Ghana cedis in 2019, the average monthly income translated to about 96 US dollars. The amount of money spent on BC products and contraceptives, over the previous year, was 24 Ghana cedis or about 4.6 United States dollars.

As indicated in the literature, the quality attributes of available and accessible health services and systems influences the use of BC products and contraceptives. **Table 3** contains the scores for the various quality attributes of health services and health systems declared by the respondents. The lowest-ranked service or facility was

Item	Mean	SD	Range
Age in years	35.6	6.0	22 to 60
Total personal income of respondents per month, Ghana Cedis (GHC)	498.8	203.2	0 to 1450
Number of years of formal schooling	11.0	3.3	0 to 18
Number of people in the household	6.0	1.7	2 to 17
Expenditures on BC products during the previous 12 months	24.0	59.7	0 to 400

Source: Data from survey undertaken in November and December 2019.

Table 2.
Summary of characteristics of male survey respondents based on averages.

the sanitary condition of the facility. The average quality score for this attribute was 1.705. On the other hand, the highest ranked attribute was the ease of access to the health centre or clinic with an average score of 4.301 out of the maximum score of 5.0. Services provided by doctors at the health centre or clinic were generally considered to be in the very good to excellent range and further the quality values exceeded those indicated for services provided by nurses and pharmacists (refer to **Table 3**). The quality of services provided by pharmacists and nurses at the health centre and clinic

Item	Number	Average Score	Standard Deviation	Ranking
Health Centre or Clinic				
Distance to the Health Centre or Clinic	300	3.768	0.845	3
Time to the Health Centre or Clinic	300	3.884	0.731	2
Ease of Access to the Facility on Arrival	300	4.301	0.587	1
Availability of Comfortable Seating Arrangements	300	3.020	0.896	4
Availability of Toilet and Urinary Facilities	300	1.705	0.712	5
Health Centre (Nurses)				
Knowledge of my health condition	227	3.634	0.766	1
Willingness to help treat my health condition	227	3.546	0.946	2
Provision of information concerning my health condition	227	2.705	0.870	4
Level of friendliness and care from personnel	227	2.661	0.970	5
Overall usefulness of interaction with Nurse(s)	227	3.537	0.827	3
Health Personnel (Pharmacists)				
Knowledge of my health condition	163	2.663	0.678	4
Willingness to help treat my health condition	163	2.798	0.721	2
Provision of information concerning my health condition	163	2.558	0.658	5
Level of friendliness and care from personnel	163	2.712	0.767	3
Overall usefulness of interaction with Pharmacist(s)	161	3.248	0.994	1

Item	Number	Average Score	Standard Deviation	Ranking
Health Personnel (Doctors)				
Knowledge of my health condition	184	4.636	0.483	1
Willingness to help treat my health condition	246	4.550	0.545	3
Provision of information concerning my health condition	246	4.386	0.627	5
Level of friendliness and care from personnel	246	4.463	0.583	4

The assessment of the quality of services or access to services that you received at the health centre that you last visited based a Likert scale of 0 to 5 denoting excellent quality, 4 very good quality, 3 moderate quality, 2 low quality, 1 very low quality and zero (0) for no quality at all. Source: Data from survey undertaken in November and December 2019.

Table 3.
Quality assessment scores of health services and systems by respondents.

was generally similar; however the average quality scores were slightly higher for services provided by nurses.

The study identified nine BC products and methods which were known by the male respondents. These are reported in **Table 4**. The traditional method of planned abstinence from the spouse for a period of time, after the delivery of a child was the most familiar BC method or product. Male condom was the second most important BC method or product. Other BC methods and products identified by the male respondents were vasectomy, rhythm or calendar method, traditional herbs, outercourse, drinking of local gin before sex, and taking drugs to prevent pregnancy.

Table 5 shows the most important single sources of information for the BC methods and products. There were no source of awareness for five BC methods and

No.	Method	No.	Average score of importance	Standard deviation of score	Ranking
1	Traditional method - planned abstinence	300	4.470	0.629	1
2	Male condom	300	3.917	1.036	2
3	Withdrawal before ejaculation	300	3.076	1.291	3
4	Vasectomy (male sterilization)	300	1.328	1.016	4
5	Rhythm or calendar method of the woman's monthly reproductive cycle	300	0.940	0.931	5
6	Traditional herbs	300	0.887	1.147	6
7	Outercourse (sex without penetration)	300	0.626	0.817	7
8	Drinking of local gin before sex	300	0.606	0.926	8
9	Men taking drugs to prevent pregnancy	300	0.447	0.688	9

The scoring is based on 5 denoting that item is very high level of awareness, 4 represented high level of awareness, 3 indicated moderate level of awareness, 2 represented low level of awareness, 1 represented very low level of awareness and zero (0) represented total lack of awareness of the particular birth control method. The coefficient of variation is the standard deviation divided by the mean score. Source: Data from survey undertaken in November and December 2019.

Table 4.
Ranking of the level of awareness of birth control methods by respondents.

Item	Type of Birth Control Method	Most Important Source of Information	Percent of Respondents
1	Traditional method - planned abstinence	Information obtained from parents, carers and other relatives	52.6
2	Male condom	Advertisement through television	32.5
3	Withdrawal before ejaculation	Information from peers and friends	59.6
4	Vasectomy (male sterilization)	Information from peers and friends	38.7
5	Rhythm or calendar	No source of awareness	35.8
6	Traditional herbs	No source of awareness	52.3
7	Outercourse (sex without penetration)	No source of awareness	53.6
8	Drinking of local gin before sex	No source of awareness	62.3
9	Men taking drugs to prevent pregnancy	No source of awareness	65.9

Source: Data from survey undertaken in November and December 2019.

Table 5.
The most important source of information for various birth control methods as declared by the respondents.

products. These were rhythm method, traditional herbs, outercourse, drinking of local gin before sex, and taking drugs to prevent pregnancy. Further, peers and friends were the most source of information for the BC methods and products: withdrawal before ejaculation and vasectomy. Television was the major source of information for the male condom. This result on male condom was also established by Anaman and Okai [25], for females.

The intensity of the use of BC methods and products is summarized in **Tables 6** and **7**. **Table 6** provides information on the use intensity during the previous 12 months before the survey, considered to refer to current use. The information in **Table 7** refers to past use intensity of the various BC methods and products. The commonest BC method or product was the male condom. Withdrawal before ejaculation was the second most important BC method or product. The findings of

Item	Method	No.	Average score of importance	Standard deviation of score	Ranking
1	Traditional method - planned abstinence	10	0.900	1.912	3
2	Male condom	34	2.853	1.019	1
3	Withdrawal before ejaculation	10	1.20	1.619	2
4	Vasectomy (male sterilization)	9	0.56	1.667	4
5	Rhythm or calendar	8	0.00	0.00	7
6	Traditional herbs	10	0.40	0.843	6
7	Outercourse (sex without penetration)	9	0.00	0.00	7
8	Drinking of local gin before sex	8	0.00	0.00	7

Item	Method	No.	Average score of importance	Standard deviation of score	Ranking
9	Men taking drugs to prevent pregnancy	9	0.556	1.667	5

The scoring is based on 5 denoting that item is very high level of use, 4 represented high level of use, 3 indicated moderate level of use, 2 represented low level of use, 1 represented very low level of use, and zero (0) represented total lack of use of the particular birth control method. The coefficient of variation is the standard deviation divided by the mean score. Source: Data from survey undertaken in November and December 2019.

Table 6.
Ranking of the level of intensity of current use of birth control methods by respondents.

No.	Method	No.	Average score of importance	Standard deviation of score	Ranking
1	Traditional method - planned abstinence	12	0.750	1.765	2
2	Male condom	37	2.973	0.897	1
3	Withdrawal before ejaculation	10	0.00	0.00	6
4	Vasectomy (male sterilization)	11	0.45	1.508	5
5	Rhythm or calendar	10	0.00	0.00	6
6	Traditional herbs	14	0.64	1.151	3
7	Outercourse (sex without penetration)	10	0.00	0.00	6
8	Drinking of local gin before sex	10	0.00	0.00	6
9	Men taking drugs to prevent pregnancy	12	0.583	1.505	4

The scoring is based on 5 denoting that item is very high level of use, 4 represented high level of use, 3 indicated moderate level of use, 2 represented low level of use, 1 represented very low level of use, and zero (0) represented total lack of use of the particular birth control method. The coefficient of variation is the standard deviation divided by the mean score. Source: Derived from survey data, November to December 2019.

Table 7.
Ranking of the level of intensity of past use of birth control methods by male respondents.

this study corroborate the disconnect between the awareness of BC methods and products and their relatively low intensity of use in Ghana established by other studies such as [26, 27].

Table 8 provides the reasons given by the respondents for *not currently using* BC methods and products. The assertion that BC methods and products were meant for women and not men was the most important reasons given by the male respondents for their non-use of these products during the current period (within 12 months of the survey). The dislike of the BC methods and products was cited as the second most important reason for their non-use by the male respondents. The third most important reason was the perceived harmful side effects from the use of these products.

Table 9 summarizes the suggested reasons for non-use of BC methods and products during the past periods. The results assembled in **Table 9** are similar to those reported in **Table 8** with very close figures for the percentages of the male respondents expressing similar sentiments with regards to the three most important reasons

Reason for not using BC products	% of respondents	Importance ranking
Birth control methods are for women to use	31.8	1
Respondent does not like birth control methods	23.8	2
Use of birth control methods can cause serious side effects	10.3	3
Use of control methods is against cultural beliefs	9.2	4
Birth control products are not readily available	9.2	5
Birth control products are very expensive	8.0	6
Use of birth control methods is against religious beliefs	6.5	7
Birth control methods can use male or female infertility	1.1	8

Source: Data from survey undertaken in November and December 2019.

Table 8.
Reasons given by the male respondents for not currently using birth control methods and products based on the percentage of respondents.

Reason for not using birth control methods	Respondents declaring this reason (%)	Ranking
Birth control methods are for women to use	31.2	1
Respondent does not like birth control methods	23.8	2
Birth control products are not readily available	11.2	3
Birth control products are very expensive	9.6	4
Use of birth control methods is against religious beliefs	8.1	5
Use of birth control methods can cause serious side effects	7.7	6
Use of control methods is against cultural beliefs	6.9	7
Birth control methods can use male or female infertility	1.2	8

Source: Data from survey undertaken in November and December 2019.

Table 9.
Reasons given by the male respondents for not using birth control methods and products during the past based on the percentage of respondents.

for non-use of BC methods and products. Non-use of BC methods and products for religious and cultural reasons were cited by the respondents in both **Tables 8** and **9**. However, this reason was generally regarded as not important given the relatively low percentage of respondents expressing this sentiment.

The results of the analysis of the likelihood of use of BC methods and products are reported in **Table 10**. Out of the seven independent variables, five were statistically significant in influencing the likelihood of the use of these products. The statistically significant variables included the formal educational attainment of the male respondent and also the educational attainment of his spouse. However, highly educated male respondents who were married to highly-educated female partners had decreased likelihood of using BC methods and products. As expected, the level of awareness of BC methods and products led to increased likelihood of the use of these products.

Explanatory Variable	Regression Parameter Estimate	Student t Value	Probability Level of Significance
INTERCEPT	−16.638	7.832	0.005***
MALEAGE	−0.013	0.183	0.669
MALEEDU	1.210	5.186	0.023**
SPOUSEEDU	0.572	3.778	0.052*
MALEEDU*SPOUSEEDU	−0.052	3.512	0.061*
PINCOMEM	−0.001	0.284	0.594
BCPAWARENES	4.550	7.342	0.007***
BCPAWARENESS*MALEEDU	−0.306	4.331	0.037**

Number of observations for regression analysis was 300 and % observations correct was 86.7. Dependent Variable is log (PROBUSEBCP/1-PROBUSEBCP) (the natural logarithm of the odds ratio in favor of use of BC products and contraceptives).
***Statistical significance of the parameter at the 1% level.**Statistical significance of the parameter at the 5% level.
*Statistical significance of the parameter at the 10% level.

Table 10.
Binary logit regression analysis of the current use of birth control products and contraceptives versus selected socio-economic characteristics of the respondents.

Further, when the level of awareness was combined with the educational attainment, the likelihood of the use of BC methods and products declined. This particular result would suggest that male respondents who had relatively lower levels of formal educational attainment were more likely to use BC methods and products when they had increasing levels of awareness information about these products. Hence, this result paved the way for more aggressive forms of publicity of information about BC methods and products targeted at relatively lower educated male respondents.

The results of the regression analysis of the linkage between economic welfare of the male respondents, as indicated by his adjusted personal income, acting as the dependent variable, and various independent variables including the ever-use of BC products are reported in **Table 11**. Using the popular Ramsey Reset test of model specification [28], the model reported in **Table 11** was adequately specified with the Ramsey Reset probability (p) value of rejection of the null hypothesis of correct specification being 0.168 above the critical p value of 0.10 used in the study. Based on the Lagrange Multiplier (LM) test of heteroscedasticity [29], the model also had no significant heteroscedasticity. The power of the model as measured by the R^2 was 0.22; this value would be considered to be modest.

The results shown in **Table 11** indicate that the parameters of all the independent variables were statistically significant. The positive enhancing effects on the economic welfare of the male respondent were due to the status of the person being currently married and also being Muslim. The significant parameters related to the two age variables indicated the existence of a curvilinear relationship between age and economic welfare, consistent with the reproductive life cycle hypothesis used in this study. Differentiating the estimated economic welfare equation with respect to age, the age at which economic welfare started to increase was 47.8 years, assuming other things constant.

The result dealing with the MALEEDUSSS variable showed that respondents who completed secondary school education had significantly lower levels of economic

Variable	Parameter Estimate	Standardized Estimate	T value	Significance probability
	120.977	0.000	6.113	0.000***
MALEAGE	−0.239	−1.627	−2.686	0.008***
MALEAGESQUARED	0.003	1.431	2.397	0.017**
MALEEDUSSS	−2.169	−0.535	−6.237	0.000***
CUMARRIED	0.164	0.097	1.836	0.067*
ISLAMREL	0.987	0.170	3.061	0.002***
HHSIZELARGE	−1.610	−0.427	−6.526	0.000***
EVERUSEDBCP*HHSIZELARGE	0.377	0.167	3.077	0.002***

R^2 = 0.240 Adjusted R^2 = 0.222. Dependent Variable is the natural logarithm of the average monthly personal income of male respondent adjusted for by household size (LPINCOMEM). Significance level of Ramsey Reset test of correct model specification 0.168. Significance level of Lagrange Multiplier (LM) test of heteroscedasticity 0.140.

Table 11.
Regression analysis results of the relationships between a male respondent's economic welfare indicated by his adjusted personal income versus his use of contraceptives and his other socio-economic characteristics.

welfare than other respondents with different types of educational attainments, ranging from no schooling to completion of university education. Increasing household size led to declining economic welfare of the male respondent given the burden of larger household sizes. The effect of the use of BC products and contraceptives in larger-sized households was established. There was positive enhancing effect on the economic welfare of the male respondent from the use of these products for households of sizes, three or more. Thus, households that have started producing children benefitted from the use of these products, possibly due to increased levels of choices to earn incomes, arising from more spacing of births.

5. Conclusions and discussion of policy implication of the study

5.1 Summary of major findings and conclusions

This paper reports the findings of a survey of 300 adult males in all 39 communities of the Amasaman Area Council, Accra, Ghana that elicited information on the perceptions and use of BC products and contraceptives. Nine different BC methods, products and contraceptives were used by the male respondents. Peers and friends were the major source of information about these products. The educational attainment of the male respondent and that of his spouse were statistically significant in increasing the likelihood of use of BC products and contraceptives by the male respondents.

As expected, the degree of awareness of BC products and contraceptives significantly influenced the likelihood of use of these products. Awareness also acted as a moderating variable with combination of formal educational attainment of the male respondent in influencing the likelihood of current use of birth control methods in a negative fashion. This result suggested that males with lower levels of formal educational attainment, and who had higher awareness of BC products and contraceptives, were more likely to use these products.

Economic welfare was shown to be higher for married male respondents than those who were not married. Muslim respondents had significantly higher average income than non-Muslims. The significant parameters related to the two age variables indicated the existence of a curvilinear relationship between the age of the male respondent and his economic welfare; this result was consistent with the reproductive life cycle hypothesis used in this study. Average income of the male respondents increased from 47 years of age onwards.

As expected, larger household sizes were associated with lower levels of economic welfare. However, the ever-use of BC products and contraceptives, in families with larger household sizes, led to increased economic welfare. Given that larger household sizes were defined in the analysis as a dummy variable to denote household sizes of three or more people, this classification would indicate that large households were those involving a married couple with at least one child or dependent. Hence, the economic welfare enhancement obtained from use of BC products and contraceptives was a benefit accruing to households with children.

5.2 New contributions and policy implications arising from the study

This paper makes three contributions to the existing literature dealing with the use of BC products and contraceptives by males and the related policy implications arising from the pattern of male behavior identified in this study. The first contribution is that this study indicated the expected result that increasing awareness of BC products and contraceptives led to the increased likelihood of use of these products by the adult males. Further, it was shown that the increasing awareness of these products for less educated respondents led to increased likelihood of their use by these people. This result would suggest that educational and publicity campaigns of State and Community organizations should target more resources and efforts in RH care and delivery to the less educated sections of the adult male population. The current approach of non-targeted informational programmes, based on uniform spread of awareness messages across the general population of men, may not be very productive.

The second contribution of the study is related to the establishment of evidence of increased economic welfare of male household heads due to the use of BC products and contraceptives, and particularly for those adult males with larger household sizes; this result was possibly due to the increased spacing of births achieved through the use of these products. This result would suggest that targeting of awareness campaigns related to these products would also need to put emphasis on men with large household sizes as they would benefit more in terms of economic welfare arising from the use of these products.

The third contribution of this paper, which closes a gap in the literature, is the finding of very high awareness by the respondents of the traditional Ghanaian method of birth control and family planning related to the male partner avoiding sex with his spouse/partner for a period of time, often one year or more. Despite its very high awareness, and its pre-eminent ranking as the most well-known form of birth control method, among the 300 responding adult males in this study, only about four percent of the respondents were using or had used this method of birth control. This would suggest the need of policy makers and State and community organizations involved with RH care and delivery to bring back the emphasis on the traditional method of birth control related to controlled abstinence after the delivery of children by the spouses and partners of males.

Generally, religious and cultural barriers against the use of birth control methods and products were not considered important by the respondents as they were ranked as reasons for non-use of BC products by less than 10% of the sampled respondents. This result would suggest that the low use of traditional abstinence birth control method was largely related to the information market failure problem; this could be resolved by repeated messaging of its importance by State and Community organizations involved in RH care and delivery to adult males in Ghana.

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