

Gravidity, contraceptive use and acceptability of a proposed three-baby policy in a municipality of Ghana.

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Abstract

Background Childbirth and high Total Fertility Rate (TFR) among women is traditionally held in high esteem in many African societies. Therefore, bearing more children serves as a source of dignity to the mother and a resource to the family. However, the menace of large families and increasing populations is a global concern and to many African countries. The use of modern contraceptives is promoted to among other benefits, reduce pregnancies and TFR. A policy was also developed to limit the number of children per couple in Ghana to three. This study determined the factors associated with gravidity, the acceptability of the proposed three-baby per couple policy and the prevalence of modern contraceptives in a Ghanaian Municipality.

Methods A descriptive cross-sectional study design was adopted and involved 350 women of reproductive age who had a history of past or present pregnancy. Data were collected using a structured questionnaire and analyzed using descriptive and inferential statistical analysis with the aid of STATA version 14.

Results The results indicated that 97.39% of the participants had knowledge of modern contraceptives and 33.91% were current users of modern contraceptives. Gravidity showed significant association with age, marital status, educational level, employment status and source of contraceptive ($p < 0.001$). Participants with no formal education had the highest gravidity (Mean \pm SD = 6.0 ± 1.7). Also, 86.29% were aware of the proposed three-baby policy but only 28.37% were willing to accept the policy. A linear regression analysis showed a negative association between age and gravidity ($p = 0.018$; $\beta = -0.008$). The participants' desired number of children was also statistically significant with gravidity ($p < 0.001$).

Conclusion Efforts towards population control can be challenging due to the low use of modern contraceptives which is effective in reducing the TFR. Also the low acceptability of the proposed three-baby policy amongst reproductive women suggest their desire for more children.

Introduction

Contraception is one of the most essential tools for achieving an ideal family size for both men and women of reproductive age.¹ Modern contraceptives have played a major role in decreasing the total fertility rate in developing countries.^{2,3} Several reports have shown that consistent and correct use of contraceptives can prevent unintended pregnancies, reduce the need for unsafe abortions and prevent the spread of sexually transmitted infections.^{4,5} Despite the high premium placed on contraceptives, a substantial number of women still have an unmet need for contraceptives in low-to-middle income countries (LMICs). Globally, more than one in ten married or in-union women worldwide have an unmet need for contraception.⁶ In comparison, the rate of unmet need for contraception is disproportionately high in developing countries. In one study, the investigators estimated a contraceptive unmet need of 26% among women of reproductive age in developing countries.⁷

Several past studies have investigated the determinants of contraceptive use and unmet need. Among these factors included age, exposure to media, place of residence, contraceptive use on sexual debut, parity, education, wealth, and antenatal visits.^{8,9} In one of these studies conducted by Bhusal and Bhattarai in Nepal, the researchers identified women's level of education, husband's education and occupation, and wage labour as significantly associated with unmet need for contraceptives among women of childbearing age.¹⁰ Several countries especially in the developing world have promoted contraceptive use as a key strategy in population

management to ensure economic growth and social development. This strategy has been vigorously pursued based on the widely established evidence concerning the direct influence of contraceptive use on Total Fertility Rate (TFR). Yet modern contraceptive use in resource constraint areas especially sub-Saharan Africa remains low and fertility is high leading to rapid population growth and maternal and child mortality and morbidity.³ For this reason, exploring the factors associated with contraceptive use is essential in areas of low contraceptive use and prevalence such as Ghana.

The high fertility rate has persisted in Ghana despite the implementation of national policies and programs geared towards reducing births.¹¹ To date just under a quarter (23.4%) of women age 15-49 currently use a modern method of contraception in Ghana while about a fifth (21.6%) of the women age 15-49 having an unmet need for family planning.¹² The high fertility rate coupled with the low contraceptive use and prevalence compelled the government of Ghana to enact a population control policy as far back as 1969 to manage population resources consistently, accelerate economic growth and improve the quality of life of the people.¹³ However, instead of a reduction of the TFR, it rather shot up slightly from 6.4 to 6.9 between 1970 to 1975 indicating that the policy was less effective since the main target was not achieved.¹⁴ The failure in achieving the 1969 population policy forced the government of Ghana to revise and introduce another policy in 1994. One of the primary objectives of the revised population policy of 1994 was to reduce the TFR to 3.0 by the year 2020. Although the TFR has declined from about 6.4 in the 1988s to about 4.2 in 2014, the policy objective of achieving a total fertility rate of 3.0 is yet to be realized.¹³

Currently, the National Population Council of Ghana has been seriously advocating for a three-baby policy per couple as an important measure to control rapid population growth in line with the national population policy of 1994. However, the policy has received several criticisms from many stakeholders across the country leading to critical questions being asked about the practicality, acceptability, and sustainability of this policy in the country. Therefore, the objectives of this paper were to determine the factors associated with contraceptive use and the acceptability of the proposed three-baby per couple policy in a traditional community in a district of Ghana.

Methods

Research Design and Approach

The study was a descriptive cross-sectional. This design allows for studying large number of sample within limited time and cost. A quantitative approach was also adopted to allow for objectivity and reliability which can be used to make predictions and generalizations of the situation.

Study Area

The study was conducted in the Bibiani-Anhwiaso-Bekwai Municipality (BABM) in the Western region of Ghana. The BABM has a population of 123,272 representing 5.2% of the region's total population and 40.8% were in school. The primary occupations of the inhabitants are farming, trading and mining (largely by males). The Total Fertility Rate for the district is 3.2 with a general fertility rate of 94.6 births per 1000 women and a Crude Birth Rate (CBR) of 23.7 per 1000 population.¹³

Study Population

The study population included all reproductive women in the Municipality and women of reproductive age (15 to 49 years) constituted the sample for the study. The Ghana Statistical Service put the BABM's total population of reproductive women at 30,844 based on 2010 population and housing census.

Sample Size Estimation

The sample size was obtained using Cochran single proportion population formula¹⁵:

$$n = \frac{Z^2 pq}{d^2}$$

Where n = sample size

Z is a constant of 1.96 representing 95% confidence interval

p is the probability of contraceptive usage occurring, in the municipality there is 25% chances for CPR.

q is the chance of contraceptive usage not occurring, which is 1-p (i.e. 1 – 0.25 = 0.75)

d is the margin of error (i.e. 0.05)

$$\text{Therefore } n = \frac{(1.96)^2(0.25)(1-0.25)}{(0.05)^2}$$

$$n = 288$$

In correcting for expected refusals and unavailability of participants in responding to the questionnaires, a 10% adjustment was done. Hence, the minimum sample size was 320 but a total number of 350 respondents were used for the study in order to make the estimate at the municipal level meaningful.

Sampling Method / Technique

A convenient sampling technique was used to select the communities and participants. This technique was adopted due to its convenient nature in saving time and money. Because the district is predominantly rural, one urban community (Bibiani) and three rural communities (Bekwai, Subri and Dominibo) were selected. The sample size for each community was calculated by dividing the population of each community by the total population, multiplied by the calculated sample size (350) as presented in Table 1.0 below.

Table 1.0 Distribution of Sample Size by community

Community	Reproductive women according to 2010 census	Sample Size
Bibiani	7,022	204
Sefwi Bekwai	3,697	107
Subri	705	21
Dominibo	619	18
Total	12,043	350

Source: Author's construct, 2019

Data Collection Method

Data was gathered through a self-administered structured questionnaire which consisted of both open and closed ended questions where necessary. Where participants cannot read and write, the researchers administered the questionnaire in their local language (Twi).

Data Analysis

The data obtained were organized and entered into Stata version 14 (Stata Corp., College Station, Texas) for analysis. Descriptive and inferential statistics [chi-square, linear regression analysis and Analysis of Variance (ANOVA)] were performed to establish association between socio-demographic characteristics and gravidity and acceptability of the proposed three-baby policy. All statistical tests were tested at 95% significance level and the results presented in frequency tables.

Results

Socio-Demographic Characteristics of Participants

Table 2.0 below presents the demographic features of the participants. The mean age of the participants was 25 years (SD=6.4). The study participants were all females and over half of them were currently married (51%). Most of the participants attained their highest education at the basic level (65%) while only 1% had no formal education. Majority of the participants were self-employed (78%) and 12% were unemployed. Farming was the dominant occupation amongst the participants (45%), followed by trading. The least (2%) were into mining as a business. Christianity was the dominant religion (93%). At the time of data collection, 8% of the participants were pregnant while 3% were unsure of their pregnancy status.

Table 2.0: Socio-Demographic Characteristics of Participants

VARIABLE	MEAN (SD)	MINIMUM VALUE/ MAXIMUM VALUE
Age	25 (6.4)	15 - 49
Number of Children	2 (1.5)	0 - 6
Number of Pregnancies	3 (1.5)	1 - 9
	FREQUENCY (n=350)	PERCENTAGE (%)
Marital Status		
◦ Married	177	51
◦ Single	96	27
◦ Single (in relationship)	61	17
◦ Divorced	2	1
◦ Separated	7	2
◦ Widow	7	2
Highest Educational Level		
◦ Basic	225	65
◦ Secondary/Vocational	101	29
◦ Tertiary	21	6
◦ No formal Education	3	1
Employment Status		
◦ Employed	34	10
◦ Self-employed	272	78
◦ Unemployed	41	12
Current Occupation		
◦ Farming	158	45
◦ Mining	7	2
◦ Public service worker	20	6
◦ Trading	105	30
◦ Others	60	17

Religious Affiliation		
◦ Christianity	323	93
◦ Islam	26	7
Pregnancy Status		
◦ Pregnant	27	8
◦ Not pregnant	310	89
◦ Unsure	11	3

Source: Author's field survey, 2019

Gravidity and Associated Factors

Table 3.0 below shows the association between gravidity and some associated factors. A linear regression test showed an association between age and gravidity ($p < 0.001$; $\beta = 0.172$; 95% CI 0.1431489 - 0.1774841). A One-way ANOVA test of difference showed a statistically significant difference in gravidity by marital status, educational level, employment status and source of contraceptive information ($P < 0.001$).

As regards to the number of pregnancies per the various categories of participants, the Mean \pm Standard Deviation figures showed that women who were divorced had the highest number of pregnancies (5 ± 4.2), then widows (4.4 ± 2.6). The lowest number of pregnancies was recorded by those who were single but, in a relationship (1.8 ± 0.9). Based on educational levels, women with no formal education had the highest pregnancies (6.0 ± 1.7) while the lowest Mean \pm SD score associated with pregnancies was recorded by those with basic education (2.7 ± 1.4). Employed women had the highest pregnancies (3.4 ± 1.9) and the lowest was unemployed women (1.8 ± 1.0) in the employment status category. Participants professing Christianity (2.8 ± 1.5) recorded higher pregnancies than those who professed Islam (2.5 ± 1.2). Women who had knowledge of modern contraceptives experienced fewer pregnancies (2.2 ± 1.4) than their counterparts with no knowledge of modern contraceptives (2.8 ± 1.5). Women receiving contraceptive information from healthcare providers also experienced more pregnancies (3.1 ± 1.5) than those who received their information from other sources.

Table 3.0: Socio-Demographics vs Gravidity

Variables	GRAVIDITY	
	Crude <i>p</i> -value	Adjusted <i>p</i> -value [Beta Coef.(β)]
<i>Linear Regression</i>		
Age	0.000	0.000 [0.172]
<i>One-way Anova</i>		
Marital Status	Means (SD)	P-Value
◦ Married	3.4 (1.4)	0.000
◦ Single	2.1 (1.0)	
◦ Single (in relationship)	1.8 (0.9)	
◦ Divorced	5 (4.2)	
◦ Separated	3.2 (1.8)	
◦ Widowed	4.4 (2.6)	
Highest Educational Level		
◦ Basic	2.7 (1.4)	0.000
◦ Secondary/Vocational	2.8 (1.3)	
◦ Tertiary	3.2 (2.0)	
◦ No formal Education	6.0 (1.7)	
Employment Status		
◦ Employed	3.4 (1.9)	0.000
◦ Self-employed	2.9 (1.4)	
◦ Unemployed	1.8 (1.0)	
Religious Affiliation		
◦ Christianity	2.8 (1.5)	0.247
◦ Islam	2.5 (1.2)	
Awareness of Contraceptive		
◦ Yes	2.2 (1.4)	0.254
◦ No	2.8 (1.5)	
Source of Contraceptive Information		
◦ Partner	2.1 (1.2)	0.000

*Knowledge of and
Use of Modern
Contraceptives*

◦ Friend	2.2 (1.3)
◦ Media	2.3 (1.4)
◦ Healthcare Provider	3.1 (1.5)

The majority of participants knew about modern contraceptive methods (97.39%). Most of them acquired information

about contraceptives from healthcare providers (67.34%). Participants who were not using any contraceptive at the time of study were dominant (66.09%) even though they knew about contraceptive methods. For those currently using modern contraceptives, emergency pill was most used (34.45%) as shown on Table 4.0 below.

Table 4.0: Knowledge and Prevalence of Contraceptive Use

VARIABLE	FREQUENCY (n=350)	PERCENTAGE (%)
Knowledge of Modern Contraceptive Method		
◦ Yes	336	97.39
◦ No	9	2.61
Source of Contraceptive Information		
◦ Partner	36	10.40
◦ Friend	46	13.29
◦ Media	31	8.96
◦ Healthcare Provider	233	67.34
Current Contraceptive Use		
◦ No	228	66.09
◦ Yes	117	33.91
Contraceptive Method Used		
◦ Oral pill	19	15.97
◦ Emergency pill	41	34.45
◦ Condom	5	4.20
◦ IUD	17	14.29
◦ Implant	32	26.89
◦ Injectable	5	4.20

Acceptability of Proposed 'Three-Baby' Policy and Associated Factors

As indicated on Table 5.0 below, majority of the participants (86.29%) were aware of the proposed 'three-baby' policy. However, only 28.37% were willing to accept the policy and limit their births to three. The socio-demographic correlate of policy acceptability from an adjusted model was identified to be age ($p=0.018$; $\beta=-0.008$). Another correlate of policy acceptability from an adjusted model was desired number of children ($p<0.001$; $\beta=-4.724$).

Table 5.0: Acceptability of Proposed Three-Baby policy and Correlates

VARIABLE	FREQUENCY (n=350)	PERCENTAGE (%)
Awareness of Policy		
◦ Yes	302	86.29
◦ No	48	13.71
Acceptability of Policy		
◦ Yes	99	28.37
◦ No	250	71.63
SOCIO-DEMOGRAPHIC CORRELATES OF POLICY ACCEPTABILITY		
<i>Logistic Regression</i>	Crude <i>p</i> -value	Adjusted <i>p</i> -value (β)
Age	0.042	0.018 (-0.008)
Marital Status	0.970	-
Educational Level	0.836	-
Employment Status	0.996	-
OTHER CORRELATES OF POLICY ACCEPTABILITY		
Desired Number of Children	0.000	0.000 (-4.724)
Partner's Desired Number of Children	0.000	0.123
Contraceptive Use	0.934	-

Discussion

Socio-Demographic Characteristics of Participants

The mean (\pm SD) age of the participants (25 ± 6.4) reflects the youthful nature of the BABM as well as the national pattern as reported by the Ghana Statistical Service¹³. This is a characteristic of most developing countries. The participants' educational level shows an improved educational level (65.0%, 29.0%, and 6.0% had completed up to basic level, secondary/vocational level and tertiary level respectively) when compared to earlier report by GSS indicating 59.8%, 23.1% and 0.8% had attained basic, secondary/vocational and tertiary education respectively in the BABM. Perhaps, this is in response to the growing call for girl-child education in developing countries. Marriage as a highly valued institution in Africa was confirmed as over half of the participants were either

currently married, widowed or divorced. Women gain much dignity and social capital from marriage as it serves as a stage at which one is considered an adult in their community. The GSS¹³ reported Christian dominance in the BABM as confirmed in this study. Therefore, the church could be a good medium for family planning education aside other avenues. The employment status suggests that most participants may be economically empowered to make reproductive health choices like purchasing basic contraceptives, even though 49.6% of the self-employed were farmers, largely peasant farmers.

Contraceptive Use and Acceptability of the Proposed 3-Baby Policy

Contraceptives play a crucial role in achieving a planned or an ideal family size for couples and reducing the TFR in developing countries^{1,3}. Modern contraceptives are said to be more effective¹⁶. Majority of the participants (97.39%) in the present study had knowledge on the existence of modern contraceptives. This high level of awareness of a range of contraceptive methods provides a crude measure of the availability of family planning information in the district. Similar results were found in the Ga East district of Ghana where 97% of participants had knowledge of modern contraceptives.¹⁷ Most of the participants (67.34%) acquired their knowledge from healthcare providers. Primary healthcare is readily accessible in most Ghanaian districts through the CHPS initiative¹⁸. Perhaps, the regular interactions of women with healthcare providers during pregnancies might provide an opportunity for contraceptive/reproductive health education. This is because participants who had their source of contraceptive information from the healthcare provider had the highest gravidity (Mean \pm SD 3.1 \pm 1.5). This confirmed Lamvu et al¹⁹ report that women using a contraceptive method consistent with their reason were more likely to have discussed contraception with a healthcare provider. The media (such as radio television) seems less influential in conveying family planning messages as it served as the source of information on contraceptives to few participants (8.96%). In many rural parts of Ghana, access to and use of the media is limited by telecommunication barriers and cost, and therefore patronized by the few elite or wealthy people. However, in countries with highly accessible information technology such as radio and television, the media becomes the main source of family planning messages to the people²⁰.

Despite the high knowledge of participants on modern contraceptives, only about 1/3 (33.91%) were currently using modern contraceptives; and the majority of these current users use emergency pills (34.45%). Even though the current usage of modern contraceptive may not be encouraging, it showed an improvement compared to 21%, 22% and 31% for 2016, 2017 and 2018 respectively as retrieved from DHIMS 2019 in the municipality. This finding is an indication of constant reluctance of women in the BABM district to use contraceptives. This could be attributed to some contraceptive unmet needs among women of reproductive age especially in LMICs⁷ as well as myths and misconceptions about contraceptives in Africa^{21,22}. This could have implications on women's lifetime pregnancies and subsequently the achievement of an ideal family/population size and the proposed 'three-baby policy' in Ghana for that matter.

This study showed that, even though participants' awareness of contraceptives was not statistically significantly associated with gravidity ($p = 0.254$), it is plausible that those who were aware of contraceptives and more likely to use them are less likely to have more pregnancies (Mean \pm SD = 2.2 \pm 1.4), compared to their counterparts who had no knowledge (Mean \pm SD = 2.8 \pm 1.5).

The study further indicated that as participants age, gravidity increases ($p < 0.001$; $\beta = 0.172$). It is reported that aging is associated with reduced libido,²³ however one's experience of sexual affair increases as one ages and

therefore increases the likelihood of experiencing more pregnancies as demonstrated in this study. This study further shows that as people grow older, their desire for more children decreases ($p= 0.018$ [$\beta = -0.008$]) and therefore more likely to accept the proposed 'three-baby' policy. Perhaps, the challenges of children's upbringing (including educational and health needs) have tilted parents' desire for smaller families as opposed to the traditional larger families in Africa. This study revealed that, economic empowerment has the potential of increasing mothers' desire for more children, perhaps because they felt capable of meeting their wards' needs. In this study, employed participants experienced more pregnancies (Mean \pm SD = 3.4 ± 1.9) than those unemployed (Mean \pm SD = 1.8 ± 1.0). Impliedly, the proposed 'three-baby' policy in Ghana could receive more compliance from the economically disadvantaged.

Traditionally, childbearing and the desire for more children is common among African women.²⁴ Even though majority of the participants were aware of the proposed 'three-baby' policy, few were willing to limit their children to three. Participants with no formal education could be more susceptible to the practice of giving more births as they showed the highest gravidity (Mean \pm SD = 6.0 ± 1.7). Van Lith, Yahner and Bakamijian²⁵ reported that many women of reproductive age in sub-Saharan Africa prefer to space out their children rather than limiting births. This idea could have accounted for the mass rejection of the proposed 'three-baby' policy in Ghana as demonstrated in the present study. As findings indicated, the participants' desired number of children was statistically significant with the acceptability of the proposed policy, ($P < 0.001$ [$\beta = -4.724$]). Therefore, women who desired for few children stand a better chance of limiting their births to three. However, the decision of limiting births rest on both partners.

Study Limitations

The administration of the questionnaire by researchers to participants with little or no education posed some challenges with translation into the local language. Participants may also doubt their anonymity in the study which could interfere with their responses. The study could not also cover the entire municipality due to cost and time.

Conclusion

Conclusion

The use of modern contraceptives is disproportionately lower compared to its knowledge among participants in this study. Even though the modern contraceptives use may not be a habit for the current users, they believed in its effectiveness by patronizing it during emergency situations to avoid unintended pregnancies.

Equally, the difference between participants who were aware of the proposed 'three-baby' policy and those willing to limit their births to three is huge. The high rate of non-acceptability of the 'three-baby' policy suggests a difficult task ahead for its implementation and compliance. Therefore, the limited use of contraceptives and the low acceptance rate of the proposed 'three-baby' policy could negatively impact efforts towards controlling population growth in Ghana.

Recommendation

The study recommended for a further study to qualitatively evaluate barriers to modern contraceptive use and acceptability of the proposed 'three-baby' policy. This will help understand the cultural and social complexities surrounding the reproductive health behavior of the Ghanaian people, which cannot be understood with quantitative data. This will provide information to inform reproductive health education programs prior to the implementation of the proposed 'three-baby' policy.

Declarations

Ethical Approval

Ethical clearance (Ref: CHRPE/AP/319/19) was sought from the ethics committee of the Kwame Nkrumah University of Science and Technology (Committee on Human Research and Publication Ethics, CHRPE) and further permission was sought from the municipality. Informed consent from the participants was sought by allowing them to complete a consent form and the data was treated with confidentiality. The study was conducted based the methods and procedures as stated in proposal which was approved by the CHRPE-KNUST and the BABM health directorate. These guidelines were consistent with regulations for human research, determined by the aforementioned committees.

Consent for publication

Participants gave their consent for this study to be published by completing a section on the consent form that sought their approval.

Data Availability

The data gathered and analyzed in this study is available from the corresponding author on reasonable request.

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Competing Interest

The authors declare no competing interest

Authors' Contribution

VA and E A-B conceptualized the study and wrote the study proposals for ethical approval. They also developed the questionnaire used for the data collection. VH, GON, PAA and FDM collected the data. VH and GON coded the data and entered into STATA software and statistical analyses was done by E A-B and FDM. PAA, VH and GON interpreted and discussed the results. The final manuscript was developed by VH, GON and E A-B. It was reviewed by VA and PAA. All authors read the final manuscript and approved for submission for publication.

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