

Trends in Male Contraceptive Use in Ghana: An Analysis of Self-Reported Contraceptive Use from GDHS 2003, 2008 & 2014

Cyril Alando

University of Ghana School of Public Health

Adom Manu (✉ abumanu@yahoo.com)

University of Ghana School of Public Health

Helen Habib

University of Ghana School of Public Health

Emefa Modey

University of Ghana School of Public Health

Kwasi Torpey

University of Ghana School of Public Health

Richard Adanu

University of Ghana School of Public Health

Augustine Ankomah

Population Council Ghana

Research

Keywords: Trend Analysis, Male Contraception, Family Planning, Ghana

Posted Date: January 1st, 2020

DOI: <https://doi.org/10.21203/rs.2.19849/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Abstract

Background Male participation in contraception is proven to have positive outcomes on reproductive health and remains a critical issue of public health importance. However, there dearth of evidence on male contraceptive use is in Ghana. Knowledge of the trends and trajectories of male contraceptive use could inform programmatic interventions to boost male contraceptive use for effective fertility control. Thus, this study sought to examine the trends in male contraceptive use using the three most recent Demographic and Health Surveys conducted in Ghana in 2003, 2008 and 2014. **Methods** This paper examines trends in self-reported contraceptive use among sexually active Ghanaian males, using data from the three most recent national Demographic and Health Surveys (2003, 2008 and 2014). Frequency distributions of socio-demographic and background characteristics were used to describe the sample by each survey year. The Z test of proportions was used to identify significant differences in the estimated proportions and subgroups of male contraceptive use by survey year. The Combined data from the three nationally representative surveys were analysed, accruing a sample of 9,008, comprising (GDHS 2003=3,104; GDHS 2008=3,007; and GDHS 2014=2,897) male respondents who met the inclusion criteria. **Results** Male contraceptive use appears to have declined over the last three demographic surveys despite an increase in the proportion of sexually active males. A significant proportion of male contraception users (44.5% - 41.5%) still relied on the male condom as their primary contraception choice. Place of residence, educational attainment, occupation, region of residence and religious affiliation were all found to be significantly associated with male contraceptive use consistency. **Conclusions** There has been a significant decrease in contraceptive use by Ghanaian men between 2003 and 2014. The male condom appears to be the dominant modern male contraceptive method, especially during adolescence, but along the life course contraceptive use shifts towards modern female methods. There is a need for family planning service providers, policymakers and all relevant stakeholders to consciously target men with contraceptive products and services. Focusing programmes and policies towards improving men's contraceptive use is an imperative for effective fertility regulation.

Key Words: Trend Analysis, Male Contraception, Family Planning, Ghana

Background

Contraceptive use is a global phenomenon of interest [1]. Male Contraception (MC) is defined as the use of any method, medicine or device, targeting sperm production or function, by a male and/or his partner to prevent pregnancy [2–4]. Male contraceptive use remains an issue of public health importance because of the potential reproductive health and demographic benefits [2,5].

One of the highlights of the 1994 International Conference on Population and Development (ICPD) was male involvement in family planning, and effort to achieve this has grown since then [6,7]. However, MC use across the globe has not been encouraging. An examination of the use of male contraceptives worldwide revealed that contraceptive methods are directly used by men, or those that require men's co-operation to use account for about 25% of all contraceptive use worldwide [8].

Varying degrees of MC use and the factors associated with its practice worldwide have been reported in various studies [9–11]. For example, global prevalence of the four most commonly used contraceptive methods by men (male sterilization, male condom, withdrawal and rhythm) is 15.7%, with sub-Saharan African having the least (5.9%) relative to other regions [8].

Over the past half century in Ghana, contraception and family planning (FP) practices have been regarded as central in addressing issues of reproductive health as well as social and developmental challenges related to high population growth in Ghana. The country promulgated its initial National Population Policy in 1969, revised it in 1994 and implemented several policies including contraceptive social marketing; target setting to improve contraceptive prevalence rate (CPR) and reduce the total fertility rate (TFR); and in effect decrease growth rate by 2020. However, undesirable trends of the targets across implementation stages motivated the 2005 roadmap for the commencement of a comprehensive strategy to restructure FP practices in Ghana [12]. Currently, Ghana has the Ghana Family Planning Costed Implementation Plan (GFCIP), following similar programmes like the 2006-2010 policy dubbed *A Road Map for Repositioning Family Planning in Ghana* and the 2010-2013 *Ghana Shared Growth and Development Agenda*, which aimed to increase contraceptive use through various interventions; including active male partner involvement in contraception. Yet male contraceptive use continues to remain quite low.

The 2014 Ghana Evidence from nationally representative surveys in Ghana, such as the Demographic and Health Survey (DHS) and the Maternal Health Surveys report sharp contraceptive method use differentials between men and women. These surveys reveal a consistently low (1%) male condom use among the four most popular contraceptive methods (injectable, implants, the pill and male condom) among women [13].

Historically, women have been the main target of FP and contraception with less emphasis on male contraceptive use [14,15]. Although in many familial settings in Africa, men are and continue to be dominant decision-makers on fertility and contraception [9,16], programmes on family planning continue to focus less on them, leading to a widened contraceptive gap [11,17].

In Ghana, existing published studies on contraceptive use/family planning have disproportionately focused on women [18,19] and female adolescents [20,21] with much less attention to men, leading a dearth of evidence on male contraceptive use.

Given that effective fertility regulation requires the promotion and utilization of contraception by men, it is necessary to track the trends in male contraception over time to aid planning and design of policies and programmes that promote family planning and fertility control [22–25]. This study therefore assesses the trends in MC use in Ghana.

Methods

Study design

This study analysed secondary data from the three most recent Demographic and Health Surveys of 2003, 2008, 2014 conducted in Ghana. These are nationally representative, cross-sectional, analytical studies usually conducted in five (5)-year intervals. The surveys are carried out in association with the Ghana Statistical Service (GSS) and Ghana Health Service (GHS).

Sample design and sampling

The country's general population as projected by the Population and Housing Censuses (PHCs) serves as the sampling frames for the Ghana Demographic and Health Survey (GDHS) data collection with the exclusion of institutional (hotels, barracks, and prisons) and nomadic populations. The GDHS employs a two-stage sampling design; the first stage selects sample points or clusters consisting of enumeration areas (EAs) as demarcated by the GSS for the PHCs. The second stage involved systematic sampling of approximately 30 households per selected EA. Weighting factors were applied to the data to ensure nationally-representative results.

Questionnaires

The GDHS uses three standard DHS questionnaires: Household, Woman's, and Man's Questionnaires tailored to mirror population and health issues in Ghana. Based on this paper's interest, the authors used data from the Men's Questionnaires of the three GDHS datasets covering the period 2003 – 2014, involving men aged 15-59 years.

Sample

The inclusion criterion was all male respondents aged 15-49 years at the time of each GDHS. Men who have never been sexually active or need no child within one (1) year of the survey were excluded as well as men with an infecund or currently pregnant partner. Out of the total sample of 13,971 (GDHS 2003, n=5,015; GDHS 2008, n=4,568; and GDHS 2014, n=4,388) respondents for the three (3) surveys, a qualified sample of 9,008 (GDHS 2003, n=3,104; GDHS 2008, n=3,007; and GDHS 2014, n=2,897) respondents were extracted for the analysis.

Data extraction

Data was downloaded from the MEASURE DHS website after access was sought and granted. The recode manuals and the male questionnaires for the three surveys were reviewed to identify appropriate variables of interest. Variables identified were coded and labelled to ensure inter-survey uniformity and standardization in variable code

Variables

The variables that were used for this analysis were informed by relevant literature which detailed various determinants of MC use. The outcome of interest, male contraceptive use, was defined as contraceptive use by male respondent or partner during last sexual intercourse at the time of each survey.

Independent variables: The independent variables for the analysis are: Age, Marital status, Educational attainment, Region of Residence, Religion, Preferred parity, Number of children alive, Ethno-cultural group, Knowledge or awareness of a contraceptive method, Contraceptive preference, Occupation, Wealth quintiles, sources of FP information, Fertility intent, Contraceptive perception, and Ease of contraceptive acquisition.

Data analysis

Data were analysed using STATA version 15. Descriptive statistics showing frequency distributions and proportions of respondents by socio-demographic and other background factors were carried out, summarised and presented in tables, graphs and charts. Bivariate analysis using the Z-test of proportions was used to identify significant differences in identified proportions. Logistic regression was used to identify significant predictors of male contraceptive use for each GDHS survey year. Based on the outcomes, contingency tables were generated and results were reported at 95% confidence interval.

Results

Socio-demographic characteristics

Table 1 presents socio-demographic characteristics of respondents. In all the three surveys, a higher proportion of males were aged 25-39 years. The mean age participants between 2003 and 2014 did not change: 35 ± 11.1 in 2003 and 35 ± 11.6 in 2014. There was decline in the proportion of men who had never been to school - from 17.6% in 2003 to 10.8% in 2014. Corresponding increases in the proportion of men who had secondary and tertiary education occurred over the same period. The proportion of rural dwellers dipped from 54.0% to 52.8% to 46.9%, characterizing growing urbanisation. Across the entire period, less than 10% were unemployed, and among the employed, majority were engaged in Agriculture (44.3%-32.2%) and manual jobs (23.6%-32.5%). The proportion of men living below the middle class (poorest and poorer quintiles) decreased from 34.0% in 2003 to 32.2% in 2014. Less than 10% of respondents were separated or co-habiting.

Table 2 presents demographic and sexual and reproductive health characteristics of participants. The proportion of married men reduced by approximately 8 percentage points, while the proportion of men who had never married or been in a recognised union increased by about 7 percentage points. Over half remained in monogamous relationships (55.4% – 52.9%) as polygynous relationships decreased (7.0% – 4.3%). Between 32.4% and 34.8% had no living children whilst, 21.9% to 23.1% reported five (5) or more surviving children. Men's knowledge of any contraceptive method appeared almost universal over the period (99.6% - 99.7%) although a small proportion (4.4% – 5.6%) reported uneasy access to contraceptives like condoms.

<< Insert Table 1 >>

<< Insert Table 2 >>

Trends in contraceptive use among men: 2003 – 2014

A downward trend in contraceptive use among sexually active Ghanaian men was noted from analysis. Contraceptive use declined from 44.3% in 2003 to 35.6% in 2014, suggesting a nearly 1 percentage point decline *per annum* over the ten-year interval. Realistically, an acute decline occurred in 2008, followed by a marginal drop of about 0.08% between 2008 and 2014 (Figure 1). Conversely, there was an increasing trend in sexual activity among Ghanaian males over the same period of time from 77% to 81.3%, widening the gap between sexual activity and contraceptive use (Figure1).

Changes observed in male contraceptive use were significant overall ($z=6.84$, $p<0.001$) between 2003 and 2014. However, between successive surveys, the difference was only significant between 2003 and 2008 ($z=6.75$, $p<0.001$) but not 2008 and 2014 ($z=0.16$, $p=0.873$) as shown in

Table 3.

Pattern of men's contraceptive method preference at last sex among users: 2003 – 2014.

The analysis revealed that among the proportion of male contraceptive users, there was a drop from 2003(44.5%) to 2014(41.5%) in male condom use across the period of the study. Modern female methods increased by more than 10 percentage points (28.8% – 39.4%), with male sterilization being the least preferred method (0.1%). The 2008 survey which serves as the mid-period in this analysis recorded hikes in male condom (49.8%) and sterilization (1.7%) uptakes but a dip (26.4%) in modern female methods (the pill, IUD, injectable, implant, female condom, female sterilization)). However, a continuous decline occurred from 2003(26.6%) to 2014(19.0%), in Traditional and Folk methods (Figure 2).

Trends in male contraceptive use by selected socio-demographics (2003 – 2014).

Among MC users, majority (81.6% in 2003 to 83.0% in 2014) of adolescents used modern male methods. However, adult male contraceptive users age 40 years or more were increasingly shifting reliance onto modern female methods from 2003 (45.1%) to 2014 (62.3%). These differences were statistically significant across all surveys ($p < 0.001$). An increasing proportion of MC users from 2003 (34.3%) to 2014 (63.6%) who relied on modern female methods had no formal education. Among educated males, 30% to 68% depended on modern male methods across the study, a difference which was only significant for 2003 and 2008 ($p < 0.001$).

Difference in inter-regional method preference by users was significant for each survey ($p < 0.001$). By religion, among Catholic MC users, modern methods use increased for both male (43.6% - 52.5%) and female methods (23.3% -29.5%), with a 13.2 percentage point drop in traditional and folk method use (31.2% - 18.0%) between 2003 and 2014. Similarly, Traditional and other faith groups recorded an increased modern female method use in 2014(54.4%) than in 2003(28.8%), and a drastic decline in traditional and folk method use (26.6% - 4.7%) between the same period. The religious differences in contraceptive preference were significant for 2003 ($p < 0.001$) and 2014($p < 0.01$) as shown in Table 4.

<< Insert Table 4 >>

The results (Table 5) shows that over a third of male adolescents (35.3%-34.5%) [2003 – 2008] had never used any contraception, and over the same period, an increasing proportion (23.1%-30.6%) reported inconsistent contraceptive use. Again, a decreasing proportion (41.6% in 2003 to 34.9% in 2008) of adolescents reported consistent contraceptive use. Conversely, majority of men aged 40 years and above were inconsistent contraceptive users in 2003(35.4%) and 2008(44.6%). This difference in contraceptive use consistency between age groups was statistically significant ($p < 0.001$) in the two surveys.

Between 2003 and 2008, over a third of rural dwelling men had never used contraceptives (33.9%-33.7%), whilst consistent rural male contraceptive users decreased from 36.4% to 28.4%. For uneducated men, majority had never used contraceptives (58.0%-61.5%) compared to their counterparts with tertiary education (8.6% - 8.8%). Over half the men in the Savanna-North geographical region had never used contraceptives over the period (50.8%-51.1%), compared to only a fifth of their counterparts in the Coastal region (19.1% -19.3%). Place of residence, Educational attainment, occupation, region of residence and religious affiliation were all statistically significant with men's contraceptive use consistency in the two surveys ($p < 0.001$).

<< Insert Table 5 >>

Discussion

Trend in contraceptive use among males in Ghana from 2003-2014

This paper found a significant decline in overall MC use. The inter-survey test of proportions showed the difference was significant between 2003 and 2008. Similar trends have been observed in Nigeria [23] where an initial increase from 2003 - 2005 and a later decrease from 2005 - 2007 occurred. The recorded high proportions of sexually active and inexperienced adolescents, married men and women who desire more children, may account for contraceptive non-use along the reproductive years as observed in this paper.

Geographically, men from rural Ghana and uneducated men are less likely to use modern male contraceptives than their urban and educated counterparts. The results of this study, mirrors findings in a Nigerian study which also identified differences in contraceptive use by geographical location [23] and [26,27] who separately reported that educational attainment was significantly associated with contraceptive choices. This may be because many rural dwellers had no education and consequently have poor knowledge about contraception variants. Additionally, rural socio-cultural norms that promote fertility and mitigate contraceptive uptake, as well as issues of access may be accountable for these differences.

This suggests a need for locally-adapted interventions for uneducated people who work in informal sectors such as behaviour change communication in local languages and with community engagement.

Geographically, more than half of men in 2003 and 2008 from the Savanna-North had never used contraceptives than men from the other regions of the country. These findings are consistent with other studies in Ghana which reported significant socio-demographic variations in contraceptive use [26,28–31]. The findings in this study may be due to the men in the Savanna-North region having more Islamic, Traditional and other religions as well as be rural dwellers, all of which are known to influence fertility and contraceptive decisions [32,33].

The Ghanaian male adolescent population is steadily increasing, and a greater proportion of males initiated sexual intercourse during adolescence in 2014 than did in 2003. This may be because adolescents may be becoming more exposed to growing urbanisation and peer pressure from school and other social groupings. This study however discovered that between 2003 and 2008, more than a third of adolescents had never used contraception, whilst a smaller proportion were inconsistent contraceptive users. This suggests a need for special attention towards male adolescent sexual reproductive health needs particularly for contraceptive use.

The analyses also discovered a decline in ease of contraceptive access as reported by respondents. The proportion of men who said it was easy to access condoms if they needed one dropped from 2003 to 2014. This phenomenon may be attributable to an increasing male adolescent population, who without specialised service centres to address their needs will report difficulties in access to contraceptives including condoms.

Pattern of men's contraceptive method preference at last sex among users: 2003-2014

Results from the period between 2003 and 2014 show that among MC users, there was an overall increase in reliance on modern female methods although, a significant proportion of users still relied on the male condom at last sex. This correlated with findings by [34] in the Volta region of Ghana, which reported condom as the most (90%) accessed method. [35] also reported that almost a third of secondary school male students consistently used the condom. These findings are in contrast to other studies that report the underutilization of male condoms [10,36]. This increasing reliance may be attributable to the male condom being the only available, well-known, easily accessible and reversible modern male-dependent method. Literature establishes that men will be more likely to use a method they know about; which they consider safe and effective; available and grants autonomy of use [37–39].

Study limitations

Like any other survey, the data used in this study was subject to recall bias and evasion or misreporting on sensitive issues. These issues are particularly encountered when surveys retrospectively collect data spanning the period of five (5) years preceding it. Also, it may be difficult for men to know and report their partners' actual contraception status. This analysis, however, utilises the most reliable nationally representative data capture true reports of sexually active Ghanaian men who are effectively involved in contraceptive decision-making with their partners.

Conclusions And Recommendations

Conclusions

This paper makes an important contribution to literature by demonstrating the need for men to be factored into sexual and reproductive health issues and for proposing improvements required for effective male contraception inclusiveness as an intervention for improving male involvement in FP and overall sexual and reproductive health for men and their partners. The study reveals that there has been a significant decrease in contraceptive use by men from 2003 to 2014. Men depend more on modern male methods, especially the condom during adolescence, and along the life course shift towards modern female methods. Whereas the proportion of male adolescents is increasing, more than a third of it has never used contraception of any sort. Overall, significant geographical and educational differences in contraceptive utilisation exist among Ghanaian men.

Recommendations

From the findings made in this paper, the following policy interventions were recommended:

- Government in collaboration with FP Service providers and programme implementers should continuously focus programmes and policies towards improving men's contraceptive use;
- FP interventions such as regular male-focused outreach FP services including counselling, and male-directed advocacy drives within catchment areas, should be implemented to get men informed, and, to understand the benefits of limited family sizes to the family and country.
- FP Service providers and policymakers should consciously engage local authorities, men, traditional and religious groups and other relevant stakeholders in all-inclusive approaches such as community engagement to improve FP uptake.
- Interventions should be tailored and specific to the needs of sub-population groups including the use of variable behaviour change communications to ensure improved satisfaction and acceptability

Abbreviations

CPR	–	Contraceptive prevalence rate
DHS	–	Demographic and Health Survey
EAs	–	Enumeration Areas
FP	–	Family Planning
GDHS	–	Ghana Demographic and Health Survey
GFCIP	–	Ghana Family Planning Costed Implementation Plan 2016-2020
GHS	–	Ghana Health Services
GSS	–	Ghana Statistical Service
ICPD	–	International Conference on Population and Development
MC	–	Male Contraception
PHC	–	Population and Housing Census
TFR	–	Total Fertility Rate
UGSPH	–	University of Ghana School of Public Health
WHO	–	World Health Organization

Declarations

Ethical approval and consent to participate

The first author submitted a request to, and obtained a permission from Measure DHS to use the data for this study. The DHS sought Ethical approval for the data collection from the Ethical Review Committee of Ghana Health Service, Accra, Ghana, and the Institutional Review Board of ICF International, USA, for all three surveys. Each respondent provided informed verbal and/or written consent to participate in the study. The

authors affirm that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human subjects.

Consent for publication

Not applicable.

Availability of data and materials

The datasets analysed for this study are available to the public freely at MEASURE DHS, www.measuredhs.com. The MEASURE DHS standard questionnaires for the three surveys were used and can be found at <http://dhsprogram.com/publications/publications-FR307-DHS-Final-Reports.cfm>.

Competing interests

The authors declare no competing interests.

Funding

CA received funding from the HRP Alliance, part of the UNDP-UNFPA-UNICEF-WHO-World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), a cosponsored programme executed by the World Health Organization (WHO), to complete his studies. This article represents the views of the named authors only and does not represent the views of the World Health Organization.

Authors' contributions

CA conceived the study and AM, EM and AA contributed to its design. CA, AM, EM, HH AA and KT, made substantial contributions to data analysis plan, and CA performed all statistical analyses. All authors contributed to interpretation of data. CA drafted the initial version of the manuscript, it was revised thoroughly by HH, AM, EM and AA. AM, HH, EM, KT, RA and AA critically reviewed subsequent versions of the manuscript for intellectual content. All authors read and approved the final manuscript.

Acknowledgements

The authors acknowledge the Measure DHS for granting access and permission to use their datasets for this study. The support of the WHO/HRP Alliance and its Regional hub at the University of Ghana School of Public Health is acknowledged. Finally, the authors would also like to thank Mr. Emmanuel Aidoo for his STATA programming assistance.

References

1. Weber RFA, Dohle GR. Male contraception: Mechanical, hormonal and non-hormonal methods. *World J Urol.* 2003;21(5):338–40.
2. Amory JK, Page ST, Bremner WJ. Drug insight: recent advances in male hormonal contraception. *Nat Clin Pract Endocrinol Metab.* 2006; doi:10.1038/ncpendmet0069.
3. Marcell A V., Pilgrim N, Jennings JM, Sanders R, Page KR, Loosier PS, et al. Young men's overall perceived quality of care: role of sexual and reproductive health and patient-centered care. *J Adolesc Heal.* 2017; doi:10.1016/j.jadohealth.2016.10.090.

4. Office on Women's Health [OWH]. A fact sheet from the office on women's health. Birth Control Methods. 2011. <https://www.womenshealth.gov/files/fact-sheet-birth-control-methods.pdf>. Accessed 1 Oct 2017.
5. Aaltonen P, Amory JK, Anderson RA, Behre HM, Bialy G, Blithe D, et al. 10th Summit Meeting Consensus: Recommendations for Regulatory Approval for Hormonal Male Contraception. *J Androl*. 2006; doi:10.2164/jandrol.106.002311.
6. Hardee K, Croce-Galis M, Gay J. Are men well served by family planning programs? *Reprod Health*. 2017; doi:10.1186/s12978-017-0278-5.
7. Ringheim K. Reversing the downward trend in men's share of contraceptive use. *Reprod Health Matters*. 1999;7(14):83–96.
8. Ross J, Hardee K. Use of male methods of contraception worldwide. *Journal of Biosocial Science*. 2016; doi:10.1017/S0021932016000560.
9. Adewuyi A, Ogunjuyigbe P. The Role of Men in Family Planning: An Examination of Men's Knowledge and Attitude to Contraceptive Use among the Yorubas. *African Popul Stud*. 2003; doi:10.3389/fpubh.2014.00137.
10. Addis ME, Mahalik JR. Men, masculinity, and the contexts of help seeking. *Am Psychol*. 2003; doi:10.1037/0003-066X.58.1.5.
11. Miller G, Valente C. Population Policy: Abortion and Modern Contraception Are Substitutes. *Demography*. 2016; doi:10.1007/s13524-016-0492-8.
12. GHS, UNFPA. Implications of the 2014 DHS Findings for Family Planning Programming in Ghana: Day of Dialogue on Family Planning in Ghana. Accra, Ghana; 2015.
13. Ghana Statistical Service [GSS], Ghana Health Service [GHS], ICF. Ghana Maternal Health Survey 2017. Key Indicators Report. Accra, Ghana; 2018.
14. Egbe TO, Ketchen SA, Eta-Nkongho E, Ekane GEH, Belley-Priso E. Risk Factors and Barriers to Male Involvement in the Choice of Family Planning Methods in the Buea Health District , South West Region , Cameroon : A Cross-Sectional Study in a Semi-Urban Area. *Women Heal Open J*. 2016; doi:10.17140/WHOJ-1-112.
15. Adongo PB, Tapsoba P, Phillips JF, Tabong PT-N, Stone A, Kuffour E, et al. The role of community-based health planning and services strategy in involving males in the provision of family planning services: a qualitative study in Southern Ghana. *Reprod Health*. 2013; doi:10.1186/1742-4755-10-36.
16. Kassa M, Abajobir AA, Gedefaw M. Level of male involvement and associated factors in family planning services utilization among married men in Debremarkos town, Northwest Ethiopia. *BMC Int Health Hum Rights*. 2014; doi:10.1186/s12914-014-0033-8.

17. Akafuah RA, Ossou M-A. Attitudes toward and Use of Knowledge about Family Planning among Ghanaian Men. *Int J Men's Heal.* 2008; doi:10.3149/jmh.0702.109.
18. Beson P, Appiah R, Adomah-Afari A. Modern contraceptive use among reproductive-aged women in Ghana: prevalence, predictors, and policy implications. *BMC Womens Health.* 2018; doi:10.1186/s12905-018-0649-2.
19. Aviiisah PA, Dery S, Atsu BK, Yawson A, Alotaibi RM, Rezk HR, et al. Modern contraceptive use among women of reproductive age in Ghana: analysis of the 2003 – 2014 Ghana Demographic and Health Surveys. *BMC Womens Health.* 2018; doi:10.1186/s12905-018-0634-9.
20. Agyemang J, Newton S, Nkrumah I, Tsoka-Gwegweni JM, Cumber SN. Contraceptive use and associated factors among sexually active female adolescents in Atwima Kwanwoma District, Ashanti region-Ghana. *Pan Afr Med J.* 2019; doi:10.11604/pamj.2019.32.182.15344.
21. Nyarko SH. Prevalence and correlates of contraceptive use among female adolescents in Ghana. *BMC Womens Health.* 2015; doi:10.1186/s12905-015-0221-2.
22. Darroch JE, Singh S. Trends in contraceptive need and use in developing countries in 2003, 2008, and 2012: An analysis of national surveys. *The Lancet.* 2013; doi:10.1016/S0140-6736(13)60597-8.
23. Adebayo SB, Gayawan E, Ujuju C, Ankumah A. Modelling geographical variations and determinants of use of modern family planning methods among women of reproductive age in nigeria. *J Biosoc Sci.* 2013; doi:10.1017/S0021932012000326.
24. Tarico V. Better Birth Control for Men: 8 Promising Possibilities. 2013. <https://rewire.news/article/2013/10/02/better-birth-control-for-men-8-promising-possibilities/>. Accessed 1 Oct 2017.
25. Packer C, Petruney T. Meet the Demand for Modern Contraception and Reproductive Health. Campaign Brief. 2016. http://womendeliver.org/wp-content/uploads/2016/04/Good_Campaign_Brief_2_092016.pdf. Accessed 29 Sep 2017.
26. Balogun O, Adeniran A, Fawole A, Adesina K, Aboyeji A, Adeniran P. Effect of male partner's support on spousal modern contraception in a low resource setting. *Ethiop J Health Sci.* 2016; doi:10.4314/ejhs.v26i5.5.
27. Achana FS, Bawah AA, Jackson EF, Welaga P, Awine T, Asuo-Mante E, et al. Spatial and socio-demographic determinants of contraceptive use in the Upper East region of Ghana. *Reprod Health.* 2015; doi:10.1186/s12978-015-0017-8.
28. Hill NJ, Siwatu M, Robinson AK. "My Religion Picked My Birth Control": The Influence of Religion on Contraceptive Use. *J Relig Health.* 2014; doi:10.1007/s10943-013-9678-1.
29. Kramer MR, Rowland Hogue CJ, Gaydos LMD. Noncontracepting Behavior in Women at Risk for Unintended Pregnancy: What's Religion Got to Do With It? *Ann Epidemiol.* 2007; doi:10.1016/j.annepidem.2006.10.016.

30. Decat P, De Meyer S, Jaruseviciene L, Orozco M, Ibarra M, Segura Z, et al. Sexual onset and contraceptive use among adolescents from poor neighbourhoods in Managua, Nicaragua. *Eur J Contracept Reprod Heal Care*. 2015; doi:10.3109/13625187.2014.955846.
31. Curtis S, Evens E, Sambisa W. Contraceptive discontinuation and unintended pregnancy: an imperfect relationship. *Int Perspect Sex Reprod Health*. 2011; doi:10.1363/3705811.
32. Tabong PT-N, Adongo PB. Understanding the Social Meaning of Infertility and Childbearing: A Qualitative Study of the Perception of Childbearing and Childlessness in Northern Ghana. *PLoS One*. 2013; doi:10.1371/journal.pone.0054429.
33. Adongo PB, Phillips JF, Binka FN. The influence of traditional religion on fertility regulation among the Kassena-Nankana of northern Ghana. *Stud Fam Plann*. 1998; doi:10.2307/172179.
34. Wilson HW, Ameme D, Ilesanmi OS. Contraceptive Methods Accessed in Volta Region, Ghana, 2009 - 2014. *Int Sch Res Not*. 2017; doi: 10.1155/2017/7257042.
35. Tarkang EE. Factors influencing consistent condom use among secondary school male students in Limbe Urban City, Cameroon. *J Sci Res Reports*. 2015; doi:10.9734/JSRR/2015/11334.
36. Kogan P, Wald M. Male contraception: History and development. *Urol Clin North Am*. 2014; doi:10.1016/j.ucl.2013.08.012.
37. Adongo PB, Tapsoba P, Phillips JF, Tabong PT-N, Stone A, Kuffour E, et al. "If you do vasectomy and come back here weak, I will divorce you": a qualitative study of community perceptions about vasectomy in Southern Ghana. *BMC Int Health Hum Rights*. 2014; doi:10.1186/1472-698X-14-16.
38. Lopez LM, Steiner M, Grimes DA, Hilgenberg D, Schulz KF. Strategies for communicating contraceptive effectiveness. *Cochrane Database Syst Rev*. 2013; doi: 10.1002/14651858.CD006964.pub3.
39. van Wersch A, Eberhardt J, Stringer F. Attitudes towards the male contraceptive pill: psychosocial and cultural explanations for delaying a marketable product. *Basic Clin Androl*. 2012; doi: 10.1007/s12610-012-0185-4.

Tables

Table 1: Socio-demographic characteristics of respondents

Socio-demographic characteristic	2003	2008	2014
	n (%)	n (%)	n (%)
Age groups			
15-19	197(6.9)	198(6.5)	205(7.6)
20-24	453(14.2)	479(16.0)	444(14.6)
25-39	1496(48.3)	1369(46.2)	1277(44.1)
40+	958(30.5)	961(31.3)	971(33.7)
Educational Attainment			
No education	695(17.6)	571(15.3)	451(10.8)
Some/completed primary	434(13.6)	414(12.8)	408(12.5)
Some secondary	1428(50.0)	1276(45.2)	1289(48.3)
Completed Secondary	305(10.7)	441(15.8)	410(14.7)
Tertiary	242(8.2)	305(11.0)	339(13.7)
Ethno-cultural Groups			
Akan	1325(49.3)	1252(48.6)	1218(50.3)
Ga/Dangme	215(7.6)	190(6.9)	207(9.6)
Ewe	403(13.5)	429(14.4)	362(13.9)
Guan	123(3.7)	77(2.5)	81(2.2)
Northern Tribes	871(20.6)	916(22.7)	966(21.4)
Others	164(5.3)	140(4.8)	63(2.5)
Religion			
No Religion	243(7.5)	173(5.5)	192(6.8)
Roman Catholic	485(14.5)	470(14.2)	428(11.2)
Other Christians	1582(56.1)	1579(58.5)	1540(62.2)
Islam	606(17.5)	539(15.9)	570(16.4)
Trad./Others	187(4.3)	245(5.9)	167(3.4)
Region (of residence)			
Savannah-North	766(17.0)	781(16.4)	741(11.9)
Central Belt	1176(41.2)	1077(40.1)	942(36.2)
Coastal	1162(41.8)	1149(43.5)	1214(51.9)
Place of Residence			
Urban	1228(46.0)	1283(47.2)	1401(53.1)
Rural	1876(54.0)	1724(52.8)	1496(46.9)
Occupation			
Unemployed	278(9.7)	259(9.1)	198(6.4)
Specialised (<i>Professional/Technical/Managerial</i>)	278(10.1)	330(12.2)	343(13.6)
Clerical, Sales, Service	334(12.3)	526(20.6)	366(15.2)
Agriculture	1538(44.3)	1298(38.6)	1156(32.2)
Manual jobs	629(23.6)	516(19.6)	823(32.5)
Wealth Quintile			
Poorest	678(15.9)	696(17.5)	664(14.8)
Poorer	596(18.1)	556(17.1)	560(17.4)
Middle	557(19.4)	489(17.1)	555(20.0)
Richer	577(21.3)	662(24.7)	580(23.0)
Richest	696(25.3)	604(23.6)	538(24.9)

The total sample size (n) = 9,008 (2003=3,104; 2008=3,007; 2014=2,897), but it varies for some variables due to missing values.

Table 2: Demographic and Sexual and reproductive health characteristics

Characteristic	2003 n (%)	2008 n (%)	2014 n (%)
Marital status			
Never in union	834(28.1)	937(32.3)	977(35.0)
Separated	287(9.5)	203(7.2)	220(7.8)
Co-habiting	159(5.5)	161(5.7)	233(9.2)
Married	1824(56.9)	1706(54.8)	1467(48.0)
Number of Wives			
No wives	1121(37.6)	1140(39.5)	1197(42.8)
Monogynous	1717(55.4)	1662(54.7)	1520(52.9)
Polygynous	266(7.0)	205(5.8)	180(4.3)
Children Alive			
None	966(32.4)	992(33.8)	969(34.8)
1-2	747(23.7)	698(23.5)	625(22.0)
3-4	631(20.9)	641(22.5)	616(21.4)
5+	760(23.1)	676(20.3)	687(21.9)
Preferred Parity			
At most, 1	24(0.9)	23(0.9)	33(1.3)
2-3	849(29.7)	880(32.2)	795(31.7)
4+	2149(67.4)	2067(65.6)	2048(66.3)
Non-numeric/DK	82(2.0)	37(1.3)	21(0.7)
Age at First Sex (Yrs)			
<10	5(0.2)	9(0.3)	15(0.5)
10 -19	1670(55.5)	1692(57.1)	1674(58.5)
20+	1411(43.9)	1287(42.0)	1163(39.8)
Inconsistent/DK	18(0.5)	19(0.6)	45(1.2)
Knows of a Method			
No	17(0.4)	23(0.6)	10(0.3)
Yes	3087(99.6)	2984(99.4)	2887(99.7)
Fertility Intent			
No more children	766(41.4)	796(46.1)	767(48.1)
Will have a/another child	1107(53.0)	973(49.3)	830(45.7)
Undecided	102(5.6)	77(4.6)	96(6.2)
No. of Sexual Partners (within 1 year)			
None	522(16.1)	436(14.6)	419(13.8)
1	2219(71.4)	2140(71.4)	1994(68.8)
2+	359(12.5)	407(14.0)	484(17.4)
Age of most recent partner			
10-19years	-	44(2.1)	32(1.7)
20-34years	-	988(52.9)	849(50.4)
35+ years	-	829(45.0)	819(47.9)
Ease of contraceptive acquisition			
Uneasy Access	105(4.4)	126(5.0)	151(5.6)
Easy access	2388(95.6)	2457(95.0)	2495(94.4)

The total sample size (n) = 9,008 (2003=3,104; 2008=3,007; 2014=2,897), but varies for some variables due to missing values and rounding up effects.

DK = Don't know answer, as having been returned by respondent

- Missing entries-question was neither asked nor imputed for the 2003 survey.

Table 3: Inter-survey proportions test of contraceptive use by Ghanaian men: 2003-2014.

VARIABLE	2003 n (%)	2008 n (%)	2014 n (%)	2003 vs.2008 Z-score	2003 vs.2014 Z-score	2008 vs.2014 Z-score
Contraceptive use						
1-Users	1745(55.7)	1975(64.2)	1905(64.4)	±6.75 ***	±6.84 ***	±0.16
2-Users	1299(44.3)	1032(35.8)	992(35.6)			

* p < 0.001.

The total sample size (n) = 9,008 (2003=3,104; 2008=3,007; 2014=2,897), but it varies for some variables due to missing values and rounding up.

4: Distribution of men into broad contraceptive method use, by selected socio-demographic characteristics; 2003-2014.

demographic characteristic	2003 n (%)			2008 n (%)			2014 n (%)		
	Modern Male	Modern Female	Traditional/Other	Modern Male	Modern Female	Traditional /Other	Modern Male	Modern Female	Traditional/Other
Groups		***			***			***	
	65(81.6)	2(3.4)	11(15.0)	56(71.4)	7(9.6)	12(19.0)	54(83.0)	5(5.4)	6(11.6)
	168(75.6)	25(10.8)	31(13.6)	155(77.8)	20(8.3)	27(13.9)	136(63.1)	38(22.5)	21(14.4)
	268(41.8)	201(29.5)	181(28.7)	268(51.0)	140(26.6)	112(22.4)	201(40.4)	183(37.8)	88(21.8)
	69(21.3)	157(45.1)	121(33.5)	55(23.5)	108(47.1)	72(29.5)	48(19.0)	156(62.3)	40(18.7)
of Residence		***			**			***	
	292(49.9)	157(24.8)	158(24.4)	305(56.4)	115(21.8)	114(21.8)	270(48.8)	154(29.0)	88(22.2)
	278(39.0)	228(33.2)	186(27.8)	229(45.5)	160(32.0)	109(22.5)	169(32.8)	228(52.3)	67(15.0)
Education Attain.		***			***			***	
Education	49(37.7)	47(34.3)	39(28.0)	28(33.7)	32(48.1)	12(18.3)	17(25.1)	52(63.6)	7(11.4)
Completed. Primary	60(39.7)	44(29.3)	42(30.9)	59(47.3)	38(33.2)	25(19.6)	46(40.8)	69(48.6)	11(10.6)
Secondary	303(42.7)	235(32.0)	177(25.3)	215(46.2)	132(28.5)	110(25.3)	190(40.4)	158(39.1)	77(20.5)
Completed Secondary	101(60.1)	28(15.0)	44(24.9)	133(58.3)	50(21.4)	44(20.3)	105(47.1)	58(33.1)	25(19.8)
University	57(44.9)	31(24.7)	42(30.4)	99(67.4)	23(14.1)	32(18.6)	81(43.6)	45(34.6)	35(21.8)
Occupation		***			***			***	
Employed	97(81.7)	10(7.7)	15(10.6)	81(72.5)	13(10.9)	18(16.6)	62(67.8)	9(10.8)	12(21.4)
Specialised (Pros./Tech./Mgt)	60(39.0)	42(27.0)	50(34.0)	100(60.0)	35(18.5)	39(21.5)	76(43.5)	58(30.5)	27(16.0)
Professional, Sales, Service	80(46.8)	52(27.4)	45(25.8)	131(56.9)	53(23.9)	44(19.2)	63(40.2)	49(35.5)	26(24.3)
Unemployed	168(32.4)	182(36.1)	154(31.6)	106(33.7)	126(41.5)	71(24.8)	94(29.6)	169(57.8)	35(12.6)
Unemployed jobs	155(47.5)	95(28.9)	78(23.7)	101(50.6)	43(26.4)	40(23.0)	140(43.8)	97(33.9)	54(22.3)
Region (of residence)		***			***			***	
South-North	107(57.6)	46(20.9)	44(21.5)	129(64.1)	48(22.9)	23(13.0)	126(56.3)	93(40.3)	8(3.4)
Central Belt	214(41.4)	195(34.5)	127(24.1)	171(44.5)	125(32.6)	85(22.9)	128(46.3)	107(39.5)	37(14.2)
Other	249(44.7)	144(25.4)	173(29.9)	234(54.4)	102(22.1)	115(23.5)	185(37.3)	182(39.3)	110(23.4)
Religion		***						**	
Religion	28(31.9)	34(44.8)	21(23.4)	15(38.6)	12(28.4)	13(33.0)	18(30.1)	30(52.4)	9(17.4)
Non Catholic	100(43.6)	67(25.3)	72(31.2)	115(59.2)	37(19.3)	41(21.6)	89(52.5)	58(29.5)	24(18.0)
Christians	318(43.2)	231(30.1)	196(26.7)	291(49.6)	175(28.7)	133(21.8)	226(39.0)	212(39.5)	108(21.6)
	108(56.8)	49(23.5)	41(19.7)	94(54.7)	36(22.8)	29(22.5)	92(50.2)	62(40.6)	13(9.2)
Others	569(44.6)	385(28.8)	344(26.6)	19(50.0)	15(33.2)	6(16.8)	14(41.0)	20(54.4)	1(4.7)

p<0.01 *p<0.001. The samples in some observations sum up to 100±0.1%, this is due to varying missing values and rounding up effects. The Occupational Category **Specialised**, consists of respondents in professional, Technical or Managerial employment.

Table 5: Distribution of men into contraceptive use consistency, by selected socio-demographic characteristics; 2003-2014.

Socio-demographic characteristic	2003 n(%)			2008 n(%)			2014 n(%)		
	Never used	Inconsistent Users	Consistent users	Never used	Inconsistent Users	Consistent users	Never used	Inconsistent Users	Consistent users
Age groups	***			***					
19	78(35.3)	41(23.1)	74(41.6)	74(34.5)	55(30.6)	69(34.9)	-	-	-
24	101(19.3)	124(30.4)	218(50.3)	109(21.4)	175(35.9)	195(42.7)	-	-	-
39	388(24.0)	472(32.9)	605(43.1)	340(22.0)	536(40.6)	493(37.3)	-	-	-
44	313(30.8)	329(35.4)	301(33.8)	346(31.9)	403(44.6)	212(23.5)	-	-	-
Place of Residence	***			***					
Rural	218(18.3)	417(34.8)	570(46.9)	227(17.1)	544(43.3)	512(39.7)	-	-	-
Urban	662(33.9)	549(30.8)	628(36.4)	642(33.7)	625(37.9)	457(28.4)	-	-	-
Educational Attainment	***			***					
No education	401(58.0)	169(24.4)	112(17.6)	364(61.5)	146(26.5)	61(12.0)	-	-	-
Never/compl. Primary	159(36.4)	132(33.5)	133(30.1)	140(32.1)	161(40.9)	113(27.1)	-	-	-
Never secondary	270(18.8)	472(33.8)	658(47.4)	280(20.9)	566(44.7)	430(34.4)	-	-	-
Completed Secondary	28(8.6)	100(34.1)	170(57.3)	56(12.3)	172(38.8)	213(48.9)	-	-	-
Tertiary	22(8.6)	93(39.7)	125(51.7)	29(8.8)	124(44.2)	152(47.0)	-	-	-
Occupation	***			***					
Employed	67(22.9)	91(35.3)	115(41.8)	74(28.8)	78(29.9)	107(41.3)	-	-	-
Specialised (Pros./Tech./Mgt)	27(10.6)	104(38.7)	144(50.7)	38(11.5)	128(38.7)	164(49.8)	-	-	-
Agricultural, Sales, Service	54(14.8)	109(34.6)	166(50.6)	86(15.9)	220(44.3)	220(39.8)	-	-	-
Unemployed	612(38.4)	437(29.6)	456(32.0)	566(40.0)	461(37.3)	271(22.8)	-	-	-
Manual jobs	105(17.0)	208(33.3)	303(49.8)	85(16.5)	254(49.6)	177(33.9)	-	-	-
Region (of residence)	***			***					
Accra-North	390(50.8)	174(24.7)	176(24.5)	385(51.1)	213(27.3)	183(21.5)	-	-	-
Central Belt	273(23.4)	397(34.2)	486(42.4)	248(22.6)	475(44.1)	354(33.3)	-	-	-
Volta	217(19.1)	395(34.3)	536(46.6)	236(19.3)	481(42.0)	432(38.7)	-	-	-
Religion	***			***					
Religion	79(31.7)	83(35.6)	74(32.7)	67(35.4)	69(42.6)	37(22.1)	-	-	-
Roman Catholic	110(21.3)	146(30.6)	220(48.1)	117(23.4)	174(36.3)	179(40.3)	-	-	-
Other Christians	329(20.3)	530(34.3)	702(45.4)	330(19.5)	682(43.8)	567(36.6)	-	-	-
Muslim	255(40.7)	162(29.1)	172(30.3)	215(38.8)	173(34.2)	151(27.0)	-	-	-
Other/None	107(51.4)	45(27.3)	29(21.4)	140(50.5)	71(31.9)	34(17.6)	-	-	-

***p<0.001 - Means no observations: question of past contraceptive method use was not asked for GDHS2014. The samples in some observations sum up to 100±0.1%, this is due to varying missing values and rounding up effects. The Occupational Category **Specialised**, consists of respondents in professional, Technical or Managerial employment.

Figures

Trend in male sexual activity versus contraceptive use in Ghana, 2003 - 2014

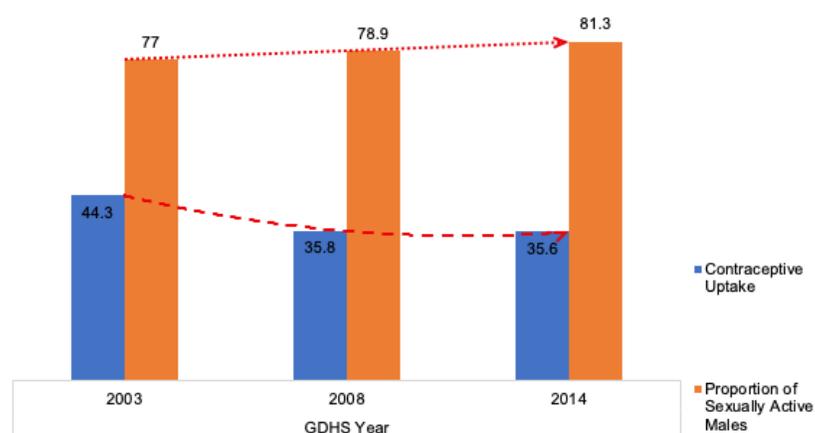


Figure 1

Trends in male sexual activity versus contraceptive use in Ghana, 2003 - 2014

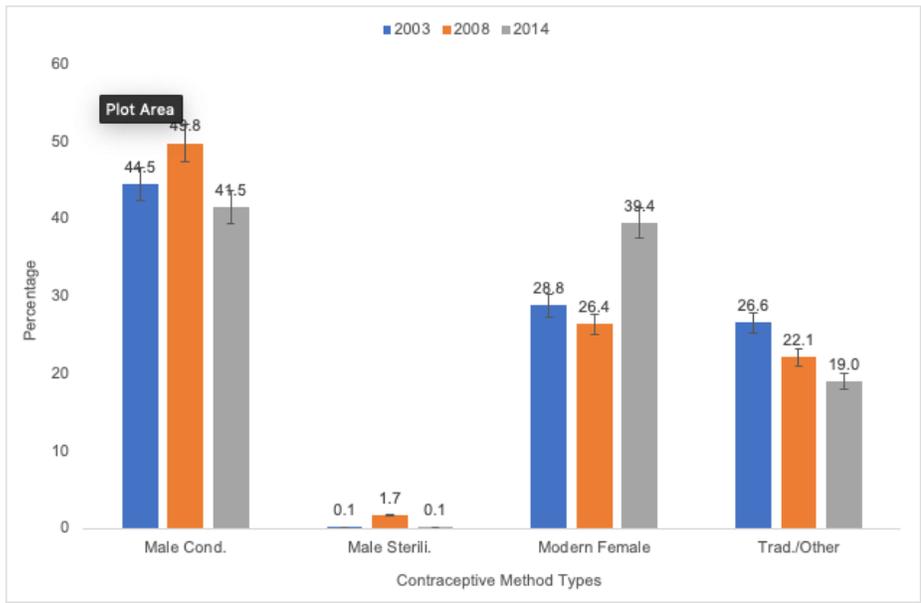


Figure 2

Pattern of male contraceptive users' method preferences in Ghana (with emphasis on modern male contraceptive method types); 2003 – 2014.