Increasing access to intrauterine contraceptive device uptake in Ghana: stakeholders views on task sharing service delivery with community health nurses

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SUMMARY

Introduction: Evidence supporting successful task sharing to increase Intrauterine Contraceptive Device (IUD) uptake exist in some developing countries that have challenges with availability of trained health professionals. Although Community Health Nurses (CHNs) in Ghana are trained to provide primary health care including emergency deliveries in rural communities, they are not professionally mandated to provide IUD services.

Objectives: To explore stakeholders' views on task sharing IUD services with CHNs in Ghana.

Methods: This qualitative case study was conducted in Accra, Ghana between June and September 2018. Focus group discussions and in-depth interviews were used to collect data from purposively selected participants. Included in the study were policy makers, policy implementing institutions, service regulators, Non-Governmental Organisations, field providers and service end users. Interviews were recorded and transcribed verbatim. We manually performed thematic analysis of data and findings were appropriately described by paraphrasing and/or quoting relevant responses verbatim.

Results: There is a general mixed feeling towards task sharing IUD services with community health nurses in Ghana. Policy makers, programmers, gynaecologists and IUD users interviewed believed that CHNs are capable of providing safe IUD services when well trained, adequately resourced and supervised. Based on some field experiences of complications associated with IUD insertions, participants who were midwives clearly indicated the need for effective training and careful implementation strategies.

Conclusions: Despite concerns about user safety, respondents endorsed task-sharing IUD services with trained CHNs in Ghana. Implementation study focusing on competency-based IUD training for selected CHNs is recommended to provide empirical evidence to back policy decisions.

Keywords: Task-sharing, IUD, Community Health Nurses, Policy, Ghana

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INTRODUCTION

The Intrauterine Devices (IUDs) are one of the most effective long acting reversible contraceptive (LARC) methods widely used by women in different countries. The IUD has been scientifically proven for its safety and cost-effectiveness. Copper T380A and Levonorgestrel releasing IUD are as effective as tubal ligations but more effective than pills, patches and contraceptive rings in preventing pregnancy.

The concept of task sharing has evolved from the need for lower cadre health professionals to provide lifesaving emergency services to a development strategy of strengthening the health system by addressing persistent human resource shortage in developing settings.^{4,5} Alt-

hough Africa has an estimated shortfall of 817,992 doctors, nurses and midwives, only few countries such as Malawi, Sierra Leone and Ghana have successfully invested in middle level providers through task sharing various sexual and reproductive health (SRH) services. These include vacuum assisted vaginal delivery, bilateral tubal ligation, Vasectomy, evacuation on the uterus in elective and emergency abortion care, and sub-dermal implant insertion and removal. Over the years the intervention has yielded desired results.^{6, 7, 8}

The concept of Community Health Nursing in Ghana was hatched in 1960 to improve the human resource capacity in the public health sector.⁹

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By Ghana standards, a Community Health Nurse (CHN) is a person with a minimum of secondary level education trained in specialized health institutions to have a combination of nursing and public health knowledge and skills to assist Public Health Nurses in reducing infant and maternal mortality rate, control communicable diseases, promote and maintain the health of mothers and children. Compared to the training of public health nurses (PHNS) over about 7 to 8 years period, CHNs are trained for a short period (2 years) to assist in working in the remote areas and also to assist PHNs in the urban areas. The CHN is in direct contact with people of different ideas, beliefs, superstition, customs and culture about health. She/he meets people with different classes, attitudes and health needs in the community.

In Ghana, task-sharing of sub-dermal implant insertion and removal with trained Community Health Nurses has been successfully implemented all over the country since 2014. ¹⁰ Although IUDs are one of the most popular contraceptive methods worldwide, an assessment of trends in IUD use in Ghana shows that uptake by women has been very poor. ¹¹ Less than 2% of Ghanaian women in reproductive age uses IUD. ¹² Various studies have shown that the three main barriers to low IUD uptake in Ghana include shortage of skilled healthcare providers, health system infrastructural challenges and user factors, particularly fear of side effects. ^{13,14,15,16,17} The objective of this study was to explore key stakeholders views' on task sharing IUD insertion and removal with Community Health Nurses in Ghana.

METHODS

Study design

We chose qualitative case study design for assessment of the views of stakeholders. This design enabled participants to freely expressed opinions and share their experiences. It allowed the study to focus on the dynamics and realities of IUD services indicated with an open mind and authentic accounts of various stakeholders.

Study population

The study was conducted among key stakeholders of family planning services in Ghana. The key stakeholders involved in the study comprised personnel from the Ministry of Health and National Population Council as policy makers, Ghana Health Service, Nursing and Midwifery Council for Ghana and Ghana Registered Midwives Association as service regulators, Coalition of NGOs in Health, midwives and physicians as family planning service providers and clients as IUDs service end users.

Participants were purposively selected from these national group of key stakeholders to ensure variety of viewpoints on the issue. Clients were included to explore their views on service provision by lower cadre of health professionals.

Inclusion/exclusion criteria

Participants occupy senior positions within the selected groups across the country. Participants had a minimum of five years of experience in family planning service delivery. Clients who have been on IUD for at least two years were also included.

Study setting

This study was conducted in Accra, Ghana. Accra is the administrative, economic, educational center and capital city of Ghana. Ghana is a sub-Saharan African country that has a comprehensive sexual and reproductive health policy which include family planning and contraception. The 2014 Ghana Demographic and Health Survey¹⁸ shows that fertility has been declining over the past years. However, a recent increase in total fertility rate (TFR) from 4.0 in 2008 to 4.2 in 2014, threatens the gains made over the years. Though there was a slight increase in the contraceptive prevalence rate (CPR) from 19% to 22% and satisfied demand increased from 18% to 39%, this is mostly propelled by short term ineffective methods.¹⁹ Among unmarried women 15-49 years, implants account for only 5% contraceptive methods and reported use for intrauterine device (IUDs) is less than 2%. This is more pronounced among unmarried young people (43% and 41% unmet need) aged 15-19 and 20-24 year olds respectively.²⁰ This is occasioned by the low number and capacity of human resources for IUD insertions which are limited to medical physicians and midwives. These cadre of health workers who are either not available or very few in rural communities and so busy that family planning is not often a priority.

Data collection

The study was conducted between June 2018 and September 2018. Focus Group Discussions (FGD) and Indepth Interviews were used for data collection. Participants were divided into 4 groups of 8 members in each group and were interviewed during various organized meetings/workshops in Accra where data collection was arranged to coincide with these meetings upon approval by the conveners of these meetings.

Participant in the focus group discussion were purposively selected from each region to ensure that members have technical and in-depth knowledge of family planning issues as well as regional representation for divergent views.

Appointments were also booked with other 13 identified key stakeholders across the regions for the face-to-face in-depth interviews.

The study objectives and rules of discussions were communicated to each participant, followed by obtaining both written informed and verbal consents from each of them prior to the respective sessions of FGD and interviews.

The focus group discussions and interviews were done using interview guides with mainly open ended questions. The focus group discussions were moderated by the first author assisted by two trained research assistants. Participants were purposively selected and assigned to the focus groups of similar professions to minimize professional influence on perceptions. Participation was voluntary; no compensations were offered to the participants.

Data was collected through audio recordings and field notes. Interviews were conducted in English language well-spoken by all participants. Data collection and recordings were both in English language. The in-depth interviews and Focus Group Discussions lasted for about 40 and 60 minutes respectively.

Data Analysis

Data were analyzed using thematic analysis. Data from the digital audio recorder was transcribed verbatim by first author. The field notes and transcribed audio recordings were converted into typed scripts and thoroughly reviewed to identify and document relevant information which were grouped into broad and sub-themes. The transcripts were carefully read, checked, discussed and manually arranged into main categories and subcategories. The main categories and subcategories were further reviewed using the transcripts and field notes to minimize loss of relevant information. The findings are presented under the themes with quotations where appropriate.

Ethical considerations

This study received ethical approval with reference number GHS-ERC 09/11/15 from the Ghana Health Service (GHS) Ethical Review Committee (ERC). The Ghana Health Service, Nursing and midwifery Council of Ghana also gave a written approval for the study. Both written informed and verbal consents were obtained from all interviewees prior to their participation in the study.

RESULTS

A total of thirteen (13) IDIs and four (4) FGDs were conducted. The professional backgrounds, number of interviewees and groupings are presented in Table 1.

Table 1 Professional background, number of interviewees and groupings

Professional Background Of Stakeholders	Number
Focus Group Discussions	
 Group 1: Midwives (IUD Providers) 	8
 Group 2: Medical Practitioners (IUD Providers) 	8
 Group 3: Sexual and Reproductive Health program officers 	8
 Group 4: Community Health Nurses 	8
In-depth Interviews	
 IUD users 	2
 NGO workers 	2
 Midwifery Tutors 	2
Community Health Nursing Tutors	2
 Policy makers from MOH 	3
 Consultant Obstetricians/Gynecologists 	2
Total respondents	45

Source: Field data, 2018

General views of stakeholders

The Interviews showed general mixed feeling towards task sharing IUD services with community health nurses among participants. There were many arguments for and against task sharing proposition. Whereas there were many positive sentiments about task sharing IUD service delivery to ensure increased numbers of services providers in rural communities, there were reservation about client safety in the hands of community health nurses. Key themes and subthemes that emerged from the analysis are indicated are in Table 2.

Table 2 Stakeholders' concerns about task sharing IUD services with CHNs in Ghana

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Main theme	Sub themes
Capability of CHNs	CHNs mandates, existing services being provided
Supportive factors	Unmet need for LARCs, Stakeholder acceptability, On- the- job training, observational learning
Barriers to implementation	Territorial dominance, low numbers of supporting policy, Fear of adverse outcome, inadequate train- ing
Need for IUD Task sharing	Low IUD numbers, low numbers of service providers
Client safety	Fear of adverse outcome, technical competency of CHNs
What needs to be done	Empirical evidence of client safety, Need for training, supervision and supplies

Source: constructed by authors using field data.

Some of the respondents indicated that:

"There are many developing countries in the world that have successful task shared complicated medical and surgical services with midlevel providers to enhance health care delivery in those countries". (Sexual and Reproductive Health program officers in IDI).

Need for IUD task-sharing The supportive factors for IUD task-sharing intervention identified included high unmet need for LARCs.

Anecdotal evidence shows that some community health nurses provide IUDs services using skills acquired on the job as indicated by a CHN. "In fact, some of us learnt how to insert IUD on the Job and even doing it very well although we know it's illegal. So, we just have to be given certificate of approval to allow us do it better for poor women to be helped" (Community Health Nurse 2 in FGD).

Some may be overconfident as indicated "the people in the villages call us 'Doctors' because of our competencies in what we do there. We are the only cadre of health care providers in the remote villages so we do everything including providing complex services and refer what we can't". (Community Health Nurse 1 in FGD).

The need to fill the human resource shortage gap in family service delivery is another reason to train the CHNs to provide IUD services. A respondent was of the view that: "we need to have confidence in our community health nurses and trained them well to take up LARC services in the country" (Policy maker 1 in IDI).

"Task sharing IUD with community health nurses will expand access and uptake services in rural communities where these community health nurses are based" (Sexual and Reproductive Health program officers in IDI).

Capability of CHNs

Majority of respondents thought CHNs are capable of performing IUD insertion and removal if they receive training. Tutors from the health training institutions shared their views as follows:

"I sincerely belief that community health nurses are capable of providing safe IUD services when well trained, adequately resourced and supervised" (Midwifery Tutor 1 in in IDI).

Some further indicated that CHNs independently provide more complicated services than IUD care provision within the health delivery system than IUD insertion. "Community Health nurses are providing more complicated services including emergency deliveries on their own in the villages where they are posted after school so why are they being prevented to provide IUD services". (General Medical Practitioner 1 in FGD).

Similar views were indicated by another medical practitioner. "I don't see anything complicated about inserting and removing IUD if community health nurses are trained and supervised to do so safely" (General Medical Practitioner 2 in FGD). Some renowned Obstetrician/Gynecologist in Ghana were supportive of CHNs being trained to provide IUD services and explained that:

"I was thought how to deliver babies effectively by community health nurses many years ago in rural Ghana when I was doing my house-man-ship. In fact some of these community health nurses are very experienced and skilled..." (Consultant Obstetrician/Gynecologist I in FGD).

"I have worked with very intelligent CHNs in rural Ghana and can confirm that they are very capable of providing IUD services if well trained and supervised" (Consultant Obstetrician/Gynecologist 2 in IDI).

Some respondents were of the opinion that involving CHNs in IUD service delivery in Ghana is long overdue because in deprived and remote communities they may be the only healthcare providers. This view was attested by CHN participant and supported by other respondents. "We are the only cadre of health care providers in the remote villages providing all kinds of health care services so why not IUDs?..." (Community Health Nurse 2 in FGD). "This initiative is long overdue" (Policy maker 1). "Many developing countries have successfully piloted and scaled up similar initiatives even with more complicated services including surgeries. So Task sharing IUD with trained community health nurses in Ghana should be endorsed" (NGO Country Director in IDI).

"Community health nurses take care of our babies when we go for weighing even in big hospitals like Korle Bu in the city. So I don't see anything wrong training them to provide IUD to mothers when they visit clinics" (IUD user 1 in IDI).

Some however doubt the capability of CHNs as indicated: "Even with simple injections we see many of them making serious mistakes so if we want to add IUD to their work then let's plan to roll it out well" (Midwife 1 in FGD).

Discussions during the in-depth interviews were more positive towards task sharing IUD services with trained community health nurses. Low IUD numbers and lack of service providers in rural areas were the supporting subthemes justifying the need for IUD task sharing initiatives. Views of some key stakeholders are as follows:

A policy maker indicated that:

"There are many human resource challenges for health care delivery in rural areas of Ghana. This is coupled with high unmet need for family planning services. To solve this problem, the use of community health nurses to improve access to family planning services including IUD insertions is likely to be the most feasible strategy towards achieving Ghana's FP2020 commitment of prioritizing family planning counselling and expand contraceptives services to ensure availability for sexually active young people" (Policy maker 3 in IDI).

Another respondent indicated that:

"I recall the Population Council was at the forefront of task sharing LARC services with trained community health nurses in Ghana. However, unnecessary bureaucracies and professional territorial dominance has stall progress on moving the IUD task sharing initiative forward. Its time as a country, we prioritize our health needs and do the needful by building capacities of midlevel providers to help bridge the human resource gap in the health sector" (NGO programs officer in IDI).

Barriers to implementation

Territorial dominance, low numbers of supporting policy, fear of adverse outcome and inadequate training were the main barriers indicated by a few respondents. Some believed that procedures involving the uterus is the preserve of gynecologists and midwives. A respondent explained: "the current crop of community health nurses are not very interested and committed to family planning services" (Midwife 1 in FGD).

There was a strong sense of territorial dominance expressed by midwives in the study. "The training of Gynecologists and midwives to manipulate the uterus is very comprehensive. In our previous experiences as midwives, we have seen many uterine injuries emanating from services provided by mid-level providers. Even with elaborate training to become Gynecologists or midwives we encounter many complications during working on the uterus, so let's not complicate issues by allowing community health nurses to get inside the uterus please" (Midwife 2 in FGD).

Safety concerns

Client safety and technical competency of CHNs providing IUD services were key concerns of some respondents since these services is perceived a high-risk service by entering the uterus. A respondent indicated that: "Like any other clinical service, what we should be concerned with is how we ensure optimal client safety when given approval to provide IUD" (Sexual and Reproductive Health program officers in IDI). Similarly, an IUD user indicated: "For me as a client, all I need is a competent service provider to give me safe and quality service any time the need arises" (IUD user 1). Another respondent indicated that: "I don't really know which type of nurse inserted my IUD for me, but all I know is that a nurse is a nurse! Whether community health nurse, international nurse or whatever type of nurse. The most important

thing is the nurse is trained to do the correct thing so that people who need the service get what they want" (IUD user 2-IDI)

Need for policy change

Although there is a general consensus of the capabilities of CHNs providing IUD services when trained and mandated, some respondents were of the view that practical evidence on CHNs competency is required to inform policy decisions. "...as a Ministry, we are receptive to policy reviews ones the required technical evidence of their competency is provided to enable us make informed decisions" (Policy maker 1 in IDI).

Generally, respondents indicated the need for policy change to allow training of CHNs in IUD service delivery and thought that midwives and physicians should leave LARC services for lower cadre professionals. "...in my opinion all LARC services including IUDs should be provided by trained community health nurses. In fact, it is ridiculous to have trained medical practitioners or midwives to be providing these services at the expense of more complicated services for which they have been trained" (Consultant Obstetrician/Gynecologist 1 in IDI).

Another respondent expressed similar sentiment:

"In fact some of these community health nurses are very experienced and skilled, so let's have a policy approval to build their capacities in IUD and other family planning services to help improve LARC uptake in Ghana' (Consultant Obstetrician/Gynecologist 2). Another respondent said: 'no matter how feasible this initiative is, the absence of a receptive policy backing will prevent implementation of this initiative since there are ethical and legal implications of allowing the CHNs to start providing IUD services without the right policies backing" (Policy maker 2 in IDI).

Another respondent stated that:

"Clinical service delivery is an apprenticeship and a skill that can be acquired through direct observation and supervision. With the kind of training we give our community Health Nurses in Ghana, I'm confident they will be able to provide IUD services if included in the curriculum as part of their training" (Community Health Nursing Tutor in IDI).

Another respondent was of the view that:

"The CHNs training curriculum requires can be trained in school and not on the job" (Midwifery Tutor 2 in IDI).

DISCUSSION

The themes that emerged from the interviews have very important implications for policy decisions and program implementations.

Evidence supporting the successful task sharing, to expand access to Long -Acting Reversible Contraceptives (LARCs) exist in many sub-Saharan African countries including Ghana that have challenges with adequate numbers of trained health professionals.^{20,21} Although Community Health Nurses in Ghana are trained and mandated to provide antenatal, maternity and postnatal care to ensure safe pregnancy, delivery and puerperium for the mother and child,²² they have limitations in professional mandate and capacity to ensure choices in IUD insertion and removals to women in their vast catchments (i.e. rural communities) where the need for LARC services is highest in Ghana due to policy limitations. Studies have shown that healthcare providers are reportedly hesitant to provide IUDs to nulliparous women due to perceived technical challenges²³ and risk of uterine injuries including perforations.²⁴ Consequently, the role of community health nurses using Community-based Health Planning and Services (CHPS) in improving Family Planning service delivery and access have not been utilized at best to improve utilization of family planning services in rural communities in Ghana.25

For too long, many people living in rural and underserved areas have been without basic Family planning service including providing Intra Uterine Device (IUD) services despite the long acting and reversible contraceptive benefits of the IUDs. Evidence supporting the successful task sharing, to expand access to IUD services abound in some developing countries such as Kenya that have challenges with adequate trained health professionals and have demonstrated that contraceptives including IUDs can be made available in a variety of service delivery settings, including hospitals, clinics, and even mobile outreach clinics and, in many cases, task sharing is employed so that different types of providers can offer these services to improve access.²⁶

The positive and receptive key stakeholders' views on task sharing IUD and related services to trained Community Health Nurses in Ghana as observed in this study is in the right direction towards advocacy for policy review to include this cadre of providers to expand LARC services. These findings are even more encouraging particularly at a time when Ghana has less than 2% of IUD uptake couple with high unmet need for family planning services particularly in rural areas.²⁷ Although few satisfied clients participated in the study for which reason their views might not be representative of all IUD clients hence cannot be generalized, the observation that IUD users are receptive to midlevel providers of IUDs once the service delivery is safe and of good quality provides some empirical data that support findings of another study²⁸ that can be used as a guide to dispel myths and misconceptions of IUD services following policy approval and implementation decisions in Ghana. What is required however to address stakeholders' concerns about client safety so as to ensure optimal endorsement is a step further to provide some empirical evidence through a pilot study using trained community health nurses for IUD service delivery to inform policy decisions.

Limitations

A limitation to this study is the sample size used. This is a qualitative study; how wide spread stakeholders' views on task sharing IUD with CHNs in Ghana is not known and will require a bigger study. Nonetheless, findings of the study provide some valuable information to guide decisions on the topic. The absence of studies on successful task sharing of IUD with mid-level providers in Ghana makes this a grey area as there were no similar studies apart from those on implants to be referenced. Nevertheless, this limitations make this study very important for a project in this area.

CONCLUSION

This study has shown stakeholders' endorsement of tasksharing IUD services with trained community health nurses in Ghana. A pilot study focusing on competency IUD training for selected CHNs in Ghana is therefore recommended to provide empirical evidence to support advocacy initiatives for policy decisions.

REFERENCES

- 1. Rivera R, Best K. Current opinion: consensus statement on intrauterine contraception. *Contraception*. 2002; 65(6); 385-388.
- 2. Chiou CF, Trussell J, Reyes E, Knight K, Wallace J, Udani J, Oda K, Borenstein J. Economic analysis of contraceptives for women. *Contraception*. 2003; 68(1); 3-10.
- 3. Yoost J. Understanding benefits and addressing misperceptions and barriers to intrauterine device access among populations in the United States. *Patient preference and adherence*. 2014; (8); 947.
- 4. World Health Organization. Task shifting: rational redistribution of tasks among health workforce teams: global recommendations and guidelines. 2007.
- World Health Organization. Task shifting: global recommendations and guidelines 2008. Guidelineshttp://www.who.int/workforcealliance/knowledge/resources/taskshifting_guidelines/en. [Accessed 24 August 2019].
- Zulu I. Clinical officers (CO) and health care delivery in Zambia: a response to physician shortage. Lusaka: CDC Global AIDS Program 2013. Available

- from:http://csis.org/files/media/csis/events/080324_zulu.pdf [accessed 23 August 2019].
- Pereira C, Cumbi A, Malalane R, Vaz F, McCord C, Bacci A, Bergström S. Meeting the need for emergency obstetric care in Mozambique: work performance and histories of medical doctors and assistant medical officers trained for surgery. BJOG: *An International Journal of Obstetrics & Gynaecology*. 2007; 114(12); 1530-1533.
- 8. World Health Organization. WHO recommendations: optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting. World Health Organization, 2012.
- Appiah-Denkyira, E., Herbst, C. H., Soucat, A., Lemiere, C., & Saleh, K. (Eds.). Toward interventions in human resources for health in Ghana: evidence for health workforce planning and results. The World Bank. 2003
- 10. Foreit, James R., and Sarah Raifman. Increasing access to family planning (FP) and reproductive health (RH) services through task-sharing between community health workers (CHWs) and community mid-level professionals in large-scale public-sector programs: a literature review to help guide case studies. 2011.
- 11. Gyapong, John, Gifty Addico, Ivy Osei, Mercy Abbey, Dominic Atweam Kobinah, Henrietta Odoi-Agyarko, Gloria Quansah Asare, Harriet Birungi, and Ian Askew. An Assessment of Trends in the Use of the IUD in Ghana. 2003.
- 12. GSS, G. Ghana statistical service (GSS), Ghana health service (GHS), and ICF macro. Accra: Ghana Demographic Health Survey 2008; 79-96.
- 13. Sonfield A. Popularity disparity: attitudes about the IUD in Europe and the United States. *Guttmacher Policy Rev.* 2007; 10(4); 19-24.
- 14. Black K, Lotke P, Buhling KJ, Zite NB. Intrauterine contraception for nulliparous women: translating research into action g. A review of barriers and myths preventing the more widespread use of intrauterine contraception in nulliparous women *The European Journal of Contraception & Reproductive Health Care*. 2012; 17(5); 340-350.
- 15. Stanwood NL, Garrett JM, Konrad TR. Obstetriciangynecologists and the intrauterine device: a survey of attitudes and practice. *Obstetrics & Gynecology*. 2002; 99(2); 275-280.
- 16. Goodman S, Hendlish SK, Benedict C, Reeves MF, Pera-Floyd M, Foster-Rosales A. Increasing intrauterine contraception use by reducing barriers to post-

- abortal and interval insertion. *Contraception*. 2008; 78(2); 136-142.
- Postlethwaite D, Trussell J, Zoolakis A, Shabear R, Petitti D. A comparison of contraceptive procurement pre-and post-benefit change. *Contraception*. 2007; 76(5): 360-365.
- 18. GSS, G. Ghana statistical service (GSS), Ghana health service (GHS), and ICF macro. Accra: Ghana Demographic Health Survey 2013 (2014); 79-96.
- 19. Asamoah BO, Agardh A, Östergren PO. Inequality in fertility rate and modern contraceptive use among Ghanaian women from 1988–2008. *International journal for equity in health*. 2013; 12(1); 37.
- 20. Blanc AK, Way AA. Sexual behavior and contraceptive knowledge and use among adolescents in developing countries. *Studies in family planning*. 1998; (1); 106-116.
- 21. Ngo TD, Nuccio O, Pereira SK, Footman K, Reiss K. Evaluating a LARC expansion program in 14 sub-Saharan African countries: a service delivery model for meeting FP2020 goals. *Maternal and child health journal*. 2017; 21(9); 1734-1743.
- 22. Quansah J.A. Over view of Community Health Nursing in Ghana (2007). Assessed from: http://wikieducator.org/Lesson_1:_Over_view_of_Community Health Nursing in Ghana on August 24, 2019.
- 23. Lyus R, Lohr P, Prager S. Use of the Mirena LNG-IUS and Paragard CuT380A intrauterine devices in nulliparous women. *Contraception*. 2010; 81(5); 367-371.
- 24. Petersen KR, Brooks L, Jacobsen B, Skouby SO. Intrauterine devices in nulliparous women. *Advances in contraception*. 1991; 7(4); 333-338.
- 25. Ntsua, Stephen, Placide Tapsoba, Gloria Quansah Asare, and Frank K. Nyonator. Repositioning community-based family planning in Ghana: A case study of Community-based Health Planning and Services (CHPS). 2012.
- 26. Hubacher D, Akora V, Masaba R, Chen M, Veena V. Introduction of the levonorgestrel intrauterine system in Kenya through mobile outreach: review of service statistics and provider perspectives. *Global Health: Science and Practice.* 2014; 2(1); 47-54.
- Ghana Health Service. Family Planning Status report presented at National Health summit. Family Health Division 2014.
- 28. Rubin SE, Winrob I. Urban female family medicine patients' perceptions about intrauterine contraception. *Journal of Women's Health*. 2010; 19(4); 735-740.