

# American Journal of Health, Medicine and Nursing Practice (AJHMN)



## **Delivery of Preconception Counselling Services: The Snags of Health Care Service Providers.**

*Hikimatu Zakariah, Mustafa Alhasan, and Agoke William*



## **Delivery of Preconception Counselling Services: The Snags of Health Care Service Providers.**

**Hikimatu Zakariah**

Principal Nursing Officer, Nursing and Midwifery Training College, Bole, Savanna Region - Ghana

**Mustafa Alhasan (PhD)**

Department of Public Health, School of Allied Health Sciences, University for Development Studies, Tamale - Ghana

**Agoke William**

Department of Educational Foundation Studies, Faculty of Education University for Development Studies, Tamale – Ghana

Corresponding Author's Email: [awilliam@uds.edu.gh](mailto:awilliam@uds.edu.gh)

### **ABSTRACT**

**Purpose:** This study investigates the difficulties the health care service providers encounter in the quest of rendering preconception counselling services in Ghana.

**Methodology:** The study employed descriptive survey design with the use of both qualitative and quantitative research approaches using questionnaire as the main tool. The study employed simple random sampling to sampled 135 out of 675 health care service providers from 23 health facilities in the Bole District of the Savanna Region in Ghana. The quantitative data obtained for the study was analysed using Statistical Package for Social Solution (SPSS) whilst the qualitative data were subjected to descriptive and narrative discussion.

**Findings:** The study revealed that, health care practitioners need continuous training programme. It also became clear that, there no any clear national guideline or policy on preconception counselling in Ghana. It came to light that, the healthcare service providers face a lot of difficulties to capture women of child bearing age to offer them the services. Inadequate knowledge and expertise to effectively offer the preconception counselling services was also identified as a challenge.

**Recommendations:** The study therefore recommend that the Ministry of Health and Ghana Health Service should come out with a clear policy guideline on preconception counselling and also provide an intensive training for the health care professionals. The health care providers should also be provided with the needed resources to embark on sensitisation and advocacy campaigns to create the awareness for women of childbearing age to appreciate the need for preconception and genetic carrier risk counselling.

**Keywords:** *Preconception, counselling, maternal health, career risk, impasses*

## Background

Preconception counselling is defined as any intervention given to women and couples of childbearing age, paying little regard to pregnancy position aspiration, before getting conceived, to improve prosperity results for women of childbearing age, new-borns and children (Dean et al., 2013). The World Health Organization (2013) defines preconception counselling as the provision of biomedical, behavioural and social health interventions to women and couples before conception occurs. Its objective is to improve the health status and reducing behavioural and environmental, emotional and psychological factors that contribute and deprived maternal and child health consequences (WHO, 2013). This implies knowing and understanding how prior health circumstances and potential risk factors could influence a woman of childbearing age or her unborn child on the off chance that she winds up pregnant (Koblinsky et al., 2018).

Some health risks such as chronic and existing medical disorders, contaminations or infections, anaemia,; for instance, hypertension and diabetes, and risk behaviours such as smoking and folate deficiency, which can influence pregnancy results and foetal development are best reformed or counteracted before the women gets pregnant (Atrash et al., 2006). There are moreover non-adjustable reproductive dangers which incorporate the age of the mother, bearers of potential genetic circumstances or family ancestry of genetic conditions. The possible effects of recognizing reproductive hazard factors, explicitly, carriers of genetic conditions or family ancestry of genetic preconception conditions, before origination are less chronicled in Africa.

In spite of endeavours to dispose of antagonistic birth outcomes, Ghana is ranked 165<sup>th</sup> in infant mortality rate among 224 nations around the world (WHO, 2016). The country scored an infant mortality rate of 37.37% in an investigation directed by WHO in 2016, to assess the number of infant deaths per 1,000 live births ([www.myjoyonline.com](http://www.myjoyonline.com), 2017). Poor maternal health among women of childbearing age, paying diminutive attention to maternal status (e.g., pregnant, post-partum), is an issue. There is a need to shift care to the time before a child is conceived, which will take into consideration greater potential to avert birth defects and other antagonistic pregnancy results.

Williams et al. (2011) posit that, to extensively give preconception counselling to women in their reproductive years, healthcare professionals require education and training about how to incorporate preconception health components into routine visits of these women. The extent to which the health care services providers appreciate and understand the need for rendering preconception counselling services expose them to peculiar health issues related to the people in that jurisdiction. It is therefore trusted that the discoveries and insights reveal both the benefits and deficiencies in preventive information, inspiration, and behavioural skills related to preconception health.

Most of the health care service providers in Ghana are not prepared and willing to offer the preconception counselling services to women of child bearing age prior to their conception. This circumstance has added to high rates of unintended pregnancies, infant morbidity and mortality, and preventable birth defects in the Savanna Region and Bole district to be precise. This study will serve as a foundational research in this area that may prompt the advancement of practice improvement project (PIP) to address the health needs of the women in the area. More so, it is useful to comprehend health care professionals' view on the difficulties in executing a viable, culturally-appropriate preconception counselling programme for this age group in the Bole District of the republic Ghana.



### ***The Evolution of Preconception Counselling***

The history of preconception counselling can be traced far back before the birth of Jesus Christ. Before the birth of Jesus Christ, several prophets and prominent individuals were conceived and the practice of preconception health care was dominant. A typical example of preconception care and counselling can be traced in the Holy Bible in the book of Judges Chapter 13 versus 3 to 5 *'The angel of the Lord appeared to her and said you who are sterile and childless, but you are going to conceive and have a son. Now see to it that you drink no wine or other fermented drink and that you do not eat anything that is unclean because you will conceive and give birth to a son'* (New International Version). This is the preconception counselling given by the Lord to the Mother of Sampson before she conceived. From the scriptures the woman was banned from taking alcohol and unclean foods before she will conceive. This may imply that, the woman was childless or could not conceive because she was taking alcohol and unclean food. This revelation suggest that not only is preconception counselling services important in our days but also it is very crucial to the Lord according to the Bible. Chepngetich (2018) posited that preconception care was greatly appreciated and practiced in the prehistoric days not only in the contemporary days. This clearly indicates that even before the birth of Christ, pre conception care was in existence and it is currently being improved as medical discoveries and its knowledge is improving.

As preconception counselling picked up momentum in the course of recent years, primary health care service providers are progressively being encouraged to give such care. In 1991, the House of Commons Health Committee suggested that preconception care be identified as one of a 'key area ' in maternal health care. According to the Centres for Disease and Control and Prevention (2006), there was recommendation that, to integrate preconception care into practice in the United States of American and further published nation-wide guiding principle to help primary health care service providers to deliver preconception health screening (Ng et al., 2002). In general, primary health care service providers were conscious that a comprehensive health valuation preceding to conception helps detect prospective reproductive risks. One of the previous studies in the Netherlands, reported that majority (93%) of the respondents previously considered providing preconception guidance as part of their duties as general consultants (Temel et al., 2015).

A study conducted in United Kingdom also found that, less than 40% of the respondents considered preconception care as essential and over 10% of the respondents were trusted that preconception to be of no significance (Mitchell et al., 2012). Indeed, even in the Hungarian Preconception Service (HPS) where preconception health care was at that point offered, just 10% of all women with planned pregnancy partook in the program (Van der Zee, 2013). Concerning preconception counselling of reproductive genetic risk, in prior investigations, deficient comprehension and consciousness of women of childbearing age or couples of its prominence and results of the hazard with genetic conditions were reported to add to them not taking part in the preconception genetic screening programmes (Borry et al., 2011; Hussein, 2016). When discovering women or couples concerning their view on preconception cystic fibrosis screening, dread of psychological implications such as stigmatisations and relationships problems on affected people and their relatives were reported as their pessimistic expectation to take an interest in the screening (Borry et al., 2011). These issues possibly pose barriers to the propagation of preconception care.

Another study on general practitioners and nurses in 42 general practices in the United Kingdom, testified that majority of the participants recognised that preconception care is important to enhance better outcome for both mothers and future children (Shannon et al.,

2014). Additionally, they agreed that preconception care should be offered resourcefully in the primary care situations (van Voorst et al., 2016). Even though the significance of preconception care is well comprehended among primary health care service providers, implementation of this form of precautionary program is still lacking. The difficulty of the primary health care service providers to reach or provide preconception health care to the targeted group stood an issue to the implementation of the services.

In a similar study conducted at the Netherlands on perception of health care providers in 49 health care facilities on preconception genetic risk counselling, it revealed that only few of them has ever rendered preconception services to the women of childbearing age (Poppelaars et al., 2004). This was supported by Ready et al. (2012) who stated that only about ten percent of pregnant patients came for preconception health care before they become pregnant. Van Voorst (2016) recounted that attainment the patients with already having reproductive risk to come to the preconception clinic is a complication (Van Voorst et al., 2016).

In the case of Africa where Ghana is also featured, it appears there is no enough literature on preconception counselling. A study conducted by Kassa et al. (2018) in Ethiopia revealing that, there is an inadmissibly low dimension of knowledge about preconception counselling among the vast majority of the healthcare providers in public health facilities. This situation and issues related to preconception counselling is not quite different in most African countries. It was believed among general practitioners that, women did not recognise themselves to be at risk for a poor pregnancy consequence in Ghana and, therefore, would not like to consult or seek health care before becoming pregnant (Bruin et al., 2008). Moreover, the issue of high incidence of unintentional pregnancy contributed to difficulty in efficaciously executing the programme (Czeizel & Vereczkey, 2012).

### ***The Delivery of Preconception Counselling Service***

Preconception counselling refers to the health counselling received by women of child bearing age before conception. The prevalence of maternal mortality and complications associated with pregnancy and child birth makes preconception counselling an essential service which requires critical attention (Boakye-Yiadom et al., 2020). A study has shown that, before most women of child bearing age seek for health counselling then they suspect or have realised that they are pregnant (Stern, 2015). This behaviour among women of childbearing age in Ghana has led to unplanned and unsafe pregnancy exposing both the woman and the unborn child to diseases.

According to Ghana Statistical Service (2007), unplanned pregnancy is very predominant in Africa and Ghana even among legally married couples. A study has showed that about 37 percent of all pregnancies occurred in Ghana are unintentional thus unplanned comprising of 23 percent mistimed pregnancies and 14 percent unwanted pregnancies (Nyarko, 2019). Nyarko added that, unplanned pregnant woman who has not received any preconception health care become venerable and exposed both the unborn child and the mother to some negative effects of physical health status, labour experience, pain during labour, and psychological status in the early Postpartum.

A study conducted by Boakye-Yiadom et al. (2020) in the northern region of Ghana revealed that, pregnant women who attend Antenatal clinic are not aware of the preconception counselling and appear to have negative attitude towards preconception care services and rarely practice preconception care. The further revealed that, the women perceive preconception counselling as alien to their culture making reference to the practices of their forefathers where issues of pregnancy and sex are kept sacred until a woman gets married experience it herself as the best and more dignifying practice. This suggest that, the women see preconception

counselling as a way of exposing the innocent lady of childbearing age to issues of pregnancy and sex which contradicts their cultural beliefs and norms.

Studies have revealed that most women of childbearing age depend on the information gathered from their mothers and elderly women in their society on pregnancy and its related issues therefore seeking professional counselling before conception appear to be a waste of time and resources (Boakye-Yiadom et al., 2020; Coonrod, et al., 2009). This confirms a study conducted by Krishnan, Joseph and Maheswari (2016) at rural area of Kerala state in India on preconception care among adolescent girls which revealed that 96.7% of adolescent girl (girls of Childbearing age) had unfavorable attitude towards preconception counselling and health care. Coonrod, et al. (2009) also supported this finding by stating that, most women of childbearing age who do not seek preconception counselling become oblivious of their pregnancy status several weeks after they are pregnant, hence putting the mother and the unborn child (fetus) to unhealthy risks.

The delivery of preconception counselling in Ghana and especially northern region is bedevilled with several challenges ranging from low level of education, religion, cultural norm and beliefs to limited health care service providers among others. Boakye-Yiadom et al. (2020) posit that, in northern Ghana, women or child bearing age lacks awareness to seek for preconception counselling and even those who are aware do not patronize this service due to inadequate resources, unavailable health care professionals, low level of education and cultural and belief systems. The culture of the people in the northern Ghana do not encourage discussion of issues related to sex therefore preventing women of childbearing age especially unmarried to seek any form of counselling on preconception.

In the case of the availability and readiness of the health care professionals, studies have shown that nurses, midwives and other health care professional have a relative low attitude towards preconception care delivery this has resulted to lack of implementation of this service especially in the rural communities (Boakye-Yiadom et al., 2020; Klein, et al., 2017; Van-Voorst, 2016). Low motivation on the part of the health care professionals to the implementation of preconception counselling service suggest that they will not encourage women of childbearing age to access this service.

### ***Challenges in Delivery of Preconception Counselling Services***

The delivery of preconception counselling service is bedevilled with several obstacles across the globe of which Ghana is not immune to this. According to Van-Voorst et al. (2016) the challenges associated with the execution of preconception counselling services are numerous and fundamental to the effective delivery of the service. Inadequate of consultation time, knowledge and training between the primary health care service providers were communicated as some key obstructing factors in the execution of the preconception health service (van Voorst et al., 2016). General health care practitioners also expressed predicament that whether preconception care interferences truthfully associated with enhanced pregnancy consequences if provided in the primary health care settings. There were also contradictory views on who is the most suitable to deliver the health care. Outcomes of studies on primary health care service providers and even women stated that general practitioners, practice nurses and community midwives were most preferred to provide preconception health care (Shannon et al., 2014).

Nyarko (2019) opined that inadequate continues professional training and development of the health care workers is also an obstacle to the effective delivery of the preconception health Care. The importance of continuous training in every sector of life especially when health care delivery and rendering professional service like preconception counselling. Nyarko (2019)

posit that it is very essential for all women's health care providers be trained to render satisfactory valuation of risk factors in pregnancy and offer appropriate recommendations for interventions. This suggest that, when the health care is given the needed training and empowerment in the field, it will go a long way to help them provide good services to their clients. According to Andargachew et al. (2019), pre-service training along with provision of an in-service training may help provide the service to all health care professionals in preconception health care delivery services for the appropriate reproductive aged individuals. The study therefore recommends that, the provision of pre-service and an in-service in preconception counselling care training to all health care providers as well as auxiliary staff of the health care service providers.

In addition to the above, lack of co-ordination between primary and secondary health care providers can also be a big set back to the successful delivery of preconception health care service delivery. Inadequate co-ordination can signify a significant obstruction to optimum preconception health care services or pre-pregnancy care, health care systems should develop policies for timely referrals to specialists and timely appointments. Murray (2002) added to this by stating that, the coordination between primary health care and a secondary health care or specialist referral requires careful agreement to avoid subjecting the patient to unnecessary delays and inconveniences.

In addressing problem of delays and long waiting times for appointments with referral specialists, the primary health care provider must put measures in place to ease the process and the reduce the waiting time. An optimum referral process needs to be timely and to involve the patient and needs an assurance when they leave the primary care doctor's office that their health care needs will not fall through the cracks (Murray, 2002). This suggest that the patient need to know exactly the time it will her to get access to the specialist for the preconception counselling services. The only means to achieve this objective is when the primary health care provider liaised well with the secondary health care provider.

Furthermore, risk factors for adverse outcome is also a barrier to effective and a successful preconception health care delivery. Even though some women tries to adopt modalities to decrease their risk factors before the conceive but as soon as they realised that they are pregnant, the magnitude of pregnancy related change in risk factors varies considerably and often does not occur early in pregnancy when teratogenic effects are more pronounced (Anderson et al. 2006). Some the possible risk factors that affect potential mothers and women of child bearing age includes advancing maternal age, genetic history, infertility, fetal aneuploidy, gestational diabetes, pre-eclampsia and prior stillbirth, chronic and untreated sexually transmitted diseases among others. Some these risk factors are usually caused by life style related behaviours like drinking of alcohol, smoking, multiple sexual partners, excessive use of contraceptives, among others.

Another key factor that negatively influence preconception health care is lack of knowledge and education about health and pregnancy. It is very essential for women of childbearing age acquire some fundamental health care education to assist them live a healthy life. Nyarko (2019) posit that, educating women and men of childbearing age of basic preconception health care, should be an integral part of all women's and men's health care provider systems, as numerous people especially women have multiple risk factors and are unaware of the adverse pregnancy outcome associated with them. This suggest that it is very important the health care professionals to organise regular public education and awareness creation on the need adverse effects of not seeking preconception health care and also some basic information on preconception counselling. This will go a long way to reduce the risk factors associated of not

seeking preconception health care and also how to deal with any possible problem associated with it.

### Methodology

The study employed both qualitative and quantitative research approach with the adoption of descriptive survey as the main research design. The descriptive survey was employed by the researchers to have indebt understanding of the subject of study and also describe some aspect of the population by sampling unbiased sample of individuals who will complete the survey instruments (Kuranchie, 2016). Best and Khan (1998) describe a descriptive survey as a design that is concerned with conditions or relationships that exist. These conditions and relationships include practices, aptitudes and opinions that are held, processes that are ongoing, trends that are developing and others.

The study involved all the 23 health care facilities with a total of 675 health care service workers in the Bole District of the Savana Region in Ghana. The researchers sampled 135 health care services providers constituting 20% of the total population. This sample size of 135 was considered appropriate considering the total population of 675 health care service providers. Nwena (1992) also supported this by stating that, if the total population of a study is few hundred, 40% or more sample size will do, if it is several hundreds, 20% sample size will do, if a few thousands, 10% will do and if several thousands, 5% or less sample size will do. Simple random sampling was employed using the lottery method to select the heath care service providers. The Health facilities where these health care service provided were selected includes; Bole District Hospital, Manduari Health care centre, Bambio Health Care centre, Tinga Health Care centre, Mankuma CHP Compound, Banda CHP Compound, Nkwanta CHP Compound, Carpenter CHP Compound, Maliwu CHP Compound and Gbanfu CHP Compound.

The study also employed questionnaire (Likert scale) and an Interview as the key data collection instrument. The questionnaire was designed in a four Likert scale such as 1 = Strong Agree (SA), 2 = Agree (A), 3 = Disagree (D) and 4 = Strong Disagree (SD). Unstructured interview was also used for the data collection. The unstructured interviews was used to avoid getting predetermined responses from the respondents and encourage the researchers to ask probing fellow-up questions based on the responses provided by the respondents (Kuranchie, 2016). The researchers used Statistical Package for Social Solution (SPSS) version 22 to analyse the responses in a descriptive statistics. The demographic data on the other hand was analysed using simple percentages and the results was presented in tables. The responses from the interview were subject narrative and descriptive analytic to confirm or otherwise the findings from the quantitative analysis.

### Discussion of Results

#### *Demographic and Educational characteristics of the respondents*

**Table 1: Age of the respondents**

Age Range	Frequency	Percent
18-24years	63	46.7
25-31 years	51	37.8
32-38 years	19	14.1
46-52 years	1	0.7
Above 52 years	1	0.7
Total	135	100.00



This result from table 1 depicts that, the majority of the health care professionals are in their youthful age (18 to 31 years – 84%) and are poised and energetic enough to contribute significantly in the delivery of the preconception counselling. Again, this age range is very significant in the sense that, most of the women who may need the preconception counselling also fall within this age and may feel comfortable open up to these practitioners. This also means that, the professional will be able to understand them better since they all belong to the same age range.

**Table 2: Gender of the respondents**

Gender	Frequency	Percentage
Female	66	48.9
Male	69	51.1
Total	135	100.0

This result suggests that, even though the male health practitioners dominate in the district, female percentage of women (48.9%) is encouraging suggesting that, women are not relegated to household chores and kitchen as being the care in the northern part of Ghana.

**Table 3: Experience of the health care professionals**

No. of Years	Frequency	Percent
1-5 years	55	40.8
5-10 years	67	49.6
10-15 years	7	5.2
15-20 years	5	3.7
20-25 years	1	0.7
25 years and above	0	0.0
Total	135	100.0

From Table 3, the results suggest that, majority (59.2%) of the health care professionals in the Bole District of the Savanna region in Ghana, has at least 5 years working experience in the health care delivery in the district. This simply means that, they are familiar with some of the key health issues confronting the people in the area and can provide enough information for a richer investigation of the problem.

**Table 4: Mode of Practice**

Mode of Practice	Frequency	Percent
Rural	96	71.1
Solo Practice	2	1.5
Urban	24	17.8
Group Practice	13	9.6
Total	135	100.0

These results suggest that, most (71.1%) of the health care facilities in the district are located in the rural areas with only 17.8% located in the urban centres. These results establish the main motive of the study which seeks to conduct that study with rural women of childbearing age in

mind. This has also revealed that health care practitioners are now accepting posting in rural areas especially northern Ghana.

**Table 5: Potential barriers to providing preconception genetic risk assessment in primary care.**

Statement	N	Mean	Std. Deviation
Very few women coming for advice before trying to conceive	135	1.61	.753
It is difficult to capture the target group	135	2.08	1.008
There is potential ethical implications of preconception genetic risk assessment (e.g. stigmatization of carriers)	135	2.37	.968
Discussing hereditary diseases with couples who are trying for a baby will cause more harm (e.g. Emotional disturbances to couples)	133	2.84	1.336
I do not have adequate training to provide preconception reproductive genetic Assessment	133	2.96	1.469

From Table 5, was strongly agreed by the health care practitioners with a mean score of 1.61 and a standard deviation of 0.753 that, very few women of childbearing age comes for advice before trying to conceive. This result suggests that, few women of childbearing age or married women visit the health facility on their own to ensure safe and complication free pregnancy. Women of childbearing age face some health risks such as infections, anaemia, existing medical conditions; for example, hypertension and diabetes, and risk behaviours such as smoking and folate deficiency, which can influence pregnancy results and foetal development and therefore require consultation and advice from an expert before conceiving (Atrash et al., 2006). This also means women of childbearing age in the district are likely to face pregnancy and genetic risk related complication since they barely visit or seek preconception genetic risk advice before getting pregnant.

Again, it was agreed with a mean score of 2.08 and a standard deviation of 1.008 by the health care professionals that, it is very difficult to capture the target group to render the preconception counselling service. This means that the health care professional finds it difficult to identify and capture the exact women in the district who are of childbearing age. According to Pender (2011), the ability of the health care practitioners to capture women of childbearing age has been a barrier to effective delivery of preconception and the ways to minimize this barrier is to create a questionnaire where all potential or women with childbearing age will be filled to easily capture them and map them for any intervention programme.

In addition to the above, it was agreed by the health care practitioners with a mean score of 2.37 and a standard deviation of 0.968 that, there is potential ethical implications of preconception genetic risk assessment (e.g. stigmatization of carriers). This result suggests that, the fear of possible stigmatisation and cultural and religious implications make women of childbearing age shy away from seeking preconception genetic risk assessment. Ballantyne et al. (2006) in a study stated that, when discussing the area of genetics, it is usually impossible to avoid ethical, legal and social implications.

The study continued by stating that, health care providers and community at large are worried about the effects of knowing genetic risk on a healthy individuals or families which vary for

specific communities and countries because of cultural and religious background. Scott et al. (2010) stated that in addressing specific population screening and genetic preconception assessment, for example; Ashkenazi Jewish communities for Tay-Sachs disease might have social or ethical implication such as stigmatisation and discrimination, which bestowed on the health care professionals to maintain high level of confidentiality and anonymity.

The revealed once again that, discussing hereditary diseases with couples who are trying for a baby causes more harm (e.g. Emotional disturbances to couples) to the couple therefore they may feel reluctant to seek for this form of preconception counselling before given birth. This was made known when the health care practitioners in the district agreed with a mean score of 2.84 and a standard deviation of 1.336 to the assertion that, discussing hereditary diseases with couples who are trying for a baby will cause more harm.

According to McClaren et al. (2008) couples has a benchmark risk of two to three percent of having a child with congenital or genetic disorder which likelihood influenced child further increases when there is a family risk. Buhi and Goodson (2007) in their study revealed that, hereditary conditions influence a large number of families as indicated by the population statistics that all around, about 5% of all pregnancies result in the birth of a child with congenital or genetic disorders. The study further advised that, assessing genetic risk enables affected individuals or couples to know about their hereditary inclination, and, to be educated on the likelihood of their future kids having genetic conditions.

Finally, the health care professionals agreed with a mean score of 2.96 and a standard deviation of 1.469 to the assertion that; ‘I do not have adequate training to provide preconception reproductive genetic Assessment’. This means that the health care professionals lack some basic knowledge and expertise to effectively offer the genetic preconception assessment and counselling to the women of childbearing age in the district and therefore require some level of training and empowerment to effectively carry out their duties. According to Williams et al. (2012), with the end goal to extensively give preconception counselling to women in their reproductive years, healthcare professionals require education and training about how to incorporate preconception health components into routine visits. Van-Voorst et at. (2016), further added that, lack of consultation time and inadequate appropriate knowledge and training among the primary care providers were also addressed as hindering factors in the delivery of the service.

***Resource need to improve the delivery of preconception genetic risk service***

The research tried to assess the perception of the health care practitioners on the resources they think will help improve the delivery of preconception genetic risk service in their various facilities. The responses from the health care practitioners are presented in the Table 6 below.

**Table 6: Resources need to improve the delivery of preconception genetic risk service.**

Statement	N	Mean	Std. Deviation
Appropriate training for general practitioners	135	1.50	.690
Clear national guidelines for general practitioners e.g. NICE	135	1.78	.740
Information leaflets on preconception genetic risk counselling given at registration to women of childbearing age	135	1.61	.754
No need for additional resources	133	3.92	1.216

From Table 6 above, it was strongly agreed among the health care practitioners with a mean score of 1.50 and a standard deviation of 0.690 that, appropriate training resources for the general health care practitioners is need for effective delivery of the preconception counselling in the district. This result suggests that, the knowledge base of the health care practitioners need to be broadened to ensure that the service they will deliver the women of childbearing age in the district are accurate and appropriate. Biratu (2017) added to this revelation by stating that, healthcare practitioners such as doctors, nurses, midwives, and pharmacists need knowledge, a favourable attitude, and the necessary skills to provide preconception counselling.

Coffey & Shorten (2014) in their study indicated that, health care professionals were concerned that they do not have the knowledge and resources necessary to provide evidence-based care related to preconception. A study conducted by Kassa et al. (2018) in Ethiopia also confirm this results by revealing that, there is an inadmissibly low dimension of knowledge about preconception counselling among the vast majority of the healthcare providers in public health facilities. This implies the situation and issues related to preconception counselling is not quite different among most African countries. Again, the results from the table also revealed a mean score of 1.78 and a standard deviation of 0.740, the health care practitioners agreed to the fact that, they need a clear national guideline for general practitioners to guide their practice.

In an open-ended questionnaire, a respondent indicated that; *“I have been in the health service for more than two decades but I have not sighted any policy document, guideline or regulation on preconception counselling. I don’t know if we even have any policy of that sought at the national level”*. This response suggests that, the health care professionals are not privy to any guideline or policy which regulate or direct their operations. The Centres for Disease and Control and Prevention (2006) of the United States of America in their report recommended to incorporate preconception care into practice and health care delivery and further published national guidelines to help primary care providers to deliver preconception health screening. In a Ghanaian situation, the World Health Organisation (2013b) indicated that, the development of guidelines to integrate preconception counselling in Ghanaian health care system is a task requiring rigorous and meticulous scientific approach.

The study again revealed that, there is the need for leaflets containing the information on preconception genetic risk counselling given at registration to women of childbearing age. This was made known when the health care professionals strongly agreed with a mean score of 1.61 and the standard deviation of 0.754 that, information leaflets on preconception genetic risk counselling given at registration to women of childbearing age. This means that it is very necessary to make the women in the childbearing age to receive information about the preconception counselling. Stephenson et al. (2014) in their study concluded that although there was a high rate of pregnancy planning but knowledge and information regarding preconception health care was lacking among the women and among the healthcare providers as well.

In addition, the health care professionals strongly disagree with a mean score of 3.92 and a standard deviation of 1.216 to the assertion that, ‘No need for additional resources’. These results suggest that, the health care professionals need additional and appropriate resources that will enhance their mode of operation. Moos et al. (2008) supported this finding by stating that, it is very important to provide the needed resources to the health care providers to effectively deliver the preconception counselling especially to women who smoke to limit exposure and provided resources for quitting if desired to avoid its effects on their unborn children. A health care practitioner in an open needed question indicated that, there is inadequate resources in



their health care facility to effectively provide some important service like preconception counselling to women in the childbearing age in the District.

### **Conclusion and Recommendation**

The results obtained from this study revealed that; very few women of childbearing age or married women in the Bole District visits the health facility on their own to ensure safe and complication free pregnancy. The health care practitioners in the district disclosed that, it is very difficult to capture the target group whilst possible stigmatisation, cultural and religious implications make women of childbearing age shy away from seeking preconception counselling in the district. It also became known that, discussing hereditary diseases with couples who are trying for a baby causes more harm (e.g. emotional disturbances to couples) to the couple therefore making them feel reluctant to seek for preconception counselling. Again, the health care professionals express the lack some basic knowledge and expertise to effectively offer the preconception counselling to the women of childbearing age in the district and therefore require some level of training and empowerment to effectively carry out their duties.

This study therefore recommends that;

1. Ministry of health through Ghana health service should constantly provide professional development and training programmes for the health care professionals to enhance their skills and knowledge to effectively perform their duty in the district.
2. The health care professionals in the district should embark on sensitisation and advocacy campaign to create the awareness of women of childbearing age to appreciate the need to patronise preconception counselling services.
3. The government through the ministry of health should provide a clear policy and guideline on preconception genetic counselling to harmonised and streamline the work of the health care professionals in the country.
4. The government of Ghana through the Ghana statistical service should provide the health care practitioners with the data of women of childbearing age to effectively render the preconception counselling service.

### **References**

- Andargachew, K.; Sarie, H. & Hirut, G. (2019). Level of Healthcare Providers' Preconception Care (PCC) Practice and Factors Associated with Non-Implementation of PCC in Hawassa, Ethiopia. *Ethiop J Health Sci*
- Anderson, J. E.; Shahul, E.; Louise. F. & ·Hani, A. (2006). Prevalence of Risk Factors for Adverse Pregnancy Outcomes during Pregnancy and the Preconception Period—United States, 2002–2004. *Matern Child Health Journal*
- Atrash, H. K., Johnson, K., Adams, M. M., Cordero, J. F., & Howse, J. (2006). Preconception care for improving perinatal outcomes: the time to act. *Maternal and child health journal*, 10(1), 3-11.
- Ballantyne, A., Goold, I., & Pearn, A. (2006). Medical genetic services in developing countries: the ethical, legal and social implications of genetic testing and screening.
- Best, J. and Kahn, J. (1998). *Research Methods in Education* (6thed). New Delhi: Prentice Hall of India
- Biratu, A. K. (2017). *Addressing the high adverse pregnancy outcomes through the incorporation of preconception care (PCC) in the health system of Ethiopia*.

- Boakye-Yiadom, A., Sagru-Larr, E., Oduro, E., Asumadu, O.K.D., Saah, J. A. & Asare, R. O. (2020). Preconception Care: Awareness, Knowledge, Attitude and Practice of Pregnant Women, Tamale West Hospital. *American Journal of Health, Medicine and Nursing Practice*. 5(1) 66 - 83
- Borry, P., Henneman, L., Lakeman, P., ten Kate, L. P., Cornel, M. C., & Howard, H. C. (2011). Preconceptional genetic carrier testing and the commercial offer directly-to-consumers. *Human Reproduction*, 26(5), 972-977.
- Buhi, E. R., & Goodson, P. (2007). Predictors of adolescent sexual behavior and intention: A theory-guided systematic review. *Journal of adolescent health*, 40(1), 4-21.
- Coonrod, D. V., Bruce, N. C., Malcolm, T. D., Drachman, D., & Frey, K. A. (2009). Knowledge and attitudes regarding preconception care in a predominantly low-income Mexican-American population. *American Journal of Obstetrics and Gynecology*, 200(6): 686- e1.
- Coffey, K., & Shorten, A. (2014). The challenge of preconception counseling: Using reproductive life planning in primary care. *Journal of the American Association of Nurse Practitioners*, 26(5), 255-262.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*: Sage publications.
- Czeizel, A. E., & Vereczkey, A. (2012). Arguments for the introduction of preconception service as the new infrastructure of reproductive health. *Asian Pacific Journal of Reproduction*, 1(2), 142-146.
- Dean, S. V., Lassi, Z. S., Imam, A. M., & Bhutta, Z. A. (2014). Preconception care: nutritional risks and interventions. *Reproductive health*, 11(3), S3.
- Dean, S. V., Mason, E. M., Howson, C. P., Lassi, Z. S., Imam, A. M., & Bhutta, Z. A. (2013). Born Too Soon: Care before and between pregnancy to prevent preterm births: from evidence to action. *Reproductive health*, 10(1), S3.
- Dixon, A., Khachatryan, A., Wallace, A., Peckham, S., Boyce, T., & Gillam, S. (2011). Impact of Quality and Outcomes Framework on health inequalities. *London: The King's Fund*.
- Garrard, J. (2013). *Health sciences literature review made easy*: Jones & Bartlett Publishers.
- GSS (2007), GHS, and Macro International,” in *Proceedings of the GSS GHS, and Macro International*, Calverton, Md, USA, 2007
- Hussein, N. (2016). *Preconception assessment of reproductive genetic risk in primary care*. University of Nottingham.
- Hussein, N., Weng, S. F., Kai, J., Kleijnen, J., & Qureshi, N. (2018). Preconception risk assessment for thalassaemia, sickle cell disease, cystic fibrosis and Tay-Sachs disease. *Cochrane Database of Systematic Reviews*(3).
- Kassa, A., Human, S. P., & Gameda, H. (2018). Knowledge of preconception care among healthcare providers working in public health institutions in Hawassa, Ethiopia. *PLoS one*, 13(10), e0204415.
- Koblinsky, M. A., Campbell, O. M., & Harlow, S. D. (2018). Mother and more: a broader perspective on women's health *The Health Of Women* (pp. 33-62): Routledge.

- Klein, J., Boyle, J. A., Kirkham, R., Connors, C., Whitbread, C., Oats, J., ..., & Shaw, J. (2017). Preconception care for women with type 2 diabetes mellitus: A mixed-methods study of provider knowledge and practice. *Diabetes Research and Clinical Practice*, 129: 105-115.
- Krishnan, G. G., Joseph, J., & Maheswari, B. (2016). Effect of structured West program on knowledge and attitude regarding preconception care among adolescent girls. *IJAR*, 2(4): 435- 439.
- Kuranchie, A. (2016). *Research made easy*. Kumasi: Book worm publications.
- McClaren, B. J., Delatycki, M. B., Collins, V., Metcalfe, S. A., & Aitken, M. (2008). 'It is not in my world': an exploration of attitudes and influences associated with cystic fibrosis carrier screening. *European Journal of Human Genetics*, 16(4), 435.
- Mitchell, E. W., Levis, D. M., & Prue, C. E. (2012). Preconception health: awareness, planning, and communication among a sample of US men and women. *Maternal and child health journal*, 16(1), 31-39.
- Moos, M.-K., Dunlop, A. L., Jack, B. W., Nelson, L., Coonrod, D. V., Long, R., . . . Gardiner, P. M. (2008). Healthier women, healthier reproductive outcomes: recommendations for the routine care of all women of reproductive age. *American journal of obstetrics and gynecology*, 199(6), S280-S289.
- Murray, M. (2002). Reducing Waits and Delays in the Referral Process. <https://www.aafp.org/fpm/2002/0300/p39.html>
- Ng, Y. Y., Bloem, A. C., Van Kessel, B., Lokhorst, H., Logtenberg, T., & Staal, F. J. (2002). Selective in vitro expansion and efficient retroviral transduction of human CD34+ CD38–haematopoietic stem cells. *British journal of haematology*, 117(1), 226-237.
- Nwena, O. C. (1992). *Introduction of research*. Ibadan: Heinmann Educational Books
- Nyarko, H. S. (2019). Unintended Pregnancy among Pregnant Women in Ghana: Prevalence and Predictors. *Journal of Pregnancy*; <https://doi.org/10.1155/2019/2920491>
- W. H.O (2013a). Meeting to develop a global consensus on preconception care to reduce maternal and childhood mortality and morbidity: World Health Organization Headquarters, Geneva, 6–7 February 2012: Meeting report.
- W. H.O (2013b). *Oral health surveys: basic methods*: World Health Organization.
- W. H.O (2013c). Preconception care: maximizing the gains for maternal and child health. Geneva: World Health Organization.
- W. H.O (2015). Preconception care: Maximising the gains for maternal and child health. 2013. Retrieved: [http://www.who.int/maternal\\_child\\_adolescent/documents/preconception](http://www.who.int/maternal_child_adolescent/documents/preconception)
- Pender, N. J. (2011). Health promotion model manual.
- Poppelaars, F. A., Henneman, L., Adèr, H. J., Cornel, M. C., Hermens, R. P., Wal, G. V. D., & Kate, L. P. T. (2004). Preconceptional cystic fibrosis carrier screening: attitudes and intentions of the target population. *Genetic Testing*, 8(2), 80-89.
- Ready, K., Haque, I. S., Srinivasan, B. S., & Marshall, J. R. (2012). Knowledge and attitudes regarding expanded genetic carrier screening among women's healthcare providers. *Fertility and sterility*, 97(2), 407-413.

- Scott, S. A., Edelman, L., Liu, L., Luo, M., Desnick, R. J., & Kornreich, R. (2010). Experience with carrier screening and prenatal diagnosis for 16 Ashkenazi Jewish genetic diseases. *Human mutation*, 31(11), 1240-1250.
- Stern, J. (2015). Preconception Health and Care. A Window of Opportunity. (Rådgivning inför graviditet. Ett gyllene tillfälle). *Digital Comprehensive summaries of Uppsala Dissertations from the Faculty of Medicine* 1160. 71 pp. Uppsala: Acta Universitatis Upsaliensis. ISBN 978-91-554-9402-5.
- Shannon, G. D., Alberg, C., Nacul, L., & Pashayan, N. (2014). Preconception healthcare delivery at a population level: construction of public health models of preconception care. *Maternal and child health journal*, 18(6), 1512-1531.
- Temel, S., van Voorst, S. F., de Jong-Potjer, L. C., Waelput, A. J., Cornel, M. C., de Weerd, S. R., . . . Steegers, E. A. (2015). The Dutch national summit on preconception care: a summary of definitions, evidence and recommendations. *Journal of community genetics*, 6(1), 107-115.
- Temel, S., van Voorst, S. F., Jack, B. W., Denктаş, S., & Steegers, E. A. (2013). Evidence-based preconceptional lifestyle interventions. *Epidemiologic reviews*, 36(1), 19-30.
- van der Zee, B. B. (2013). *Preconception care: concepts and perceptions: An ethical perspective*.
- van Voorst, S., Plasschaert, S., de Jong-Potjer, L., Steegers, E., & Denктаş, S. (2016). Current practice of preconception care by primary caregivers in the Netherlands. *The European Journal of Contraception & Reproductive Health Care*, 21(3), 251-258.
- Van Der Pal-de Bruin, K. M., Le Cessie, S., Elsinga, J., De Jong-Potjer, L. C., Van Haeringen, A., Knuistingh Neven, A., . . . Assendelft, P. (2008). Pre-conception counselling in primary care: prevalence of risk factors among couples contemplating pregnancy. *Paediatric and perinatal epidemiology*, 22(3), 280-287.
- Williams, L., Zapata, L. B., D'Angelo, D. V., Harrison, L., & Morrow, B. (2012). Associations between preconception counseling and maternal behaviors before and during pregnancy. *Maternal and child health journal*, 16(9), 1854-1861.